

# **The role of entrepreneurial intuition in making sense of strategic opportunities.**

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A thesis

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by

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*All that is gold does not glitter,  
Not all those who wander are lost,  
The old that is strong does not wither,  
Deep roots are not reached by the frost.*

- J.R.R. Tolkien (1954)

For Dr Paul Knott, for sharing the deep intellectual roots through sage counsel,  
several hundred cups of coffee and avoiding the frost(bite) on his own expeditions.

For the research participants whose un-withering strength I admire and who  
generously shared their time and thoughts, for which I am eternally grateful.

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this journey.

I hope you find gold within.

## Abstract

With the increasing amount of data and analytic tools now available, how do strategists actually utilise intuition in the opportunity sensing process? The existing literature in this area highlights the multi-faceted nature of intuition and agrees on the importance of entrepreneurial intuition from a theoretical perspective but this study is among the first to examine this specific aspect of strategic practice empirically. This research adopts a pragmatic strategy as practice perspective to examine the use of entrepreneurial intuition and employs a longitudinal research design along with a methodology that draws on dual process theory from cognitive psychology and creative action theory from sociology.

Through the use of cognitive causal maps, seven hi-tech strategists were engaged in a two year longitudinal data collection process during which time they each sought and attempted to progress a number of strategic opportunities. Subsequent abductive analysis of the case data along with synthesis of existing models of creativity and strategic cognition has allowed for a dynamic recursive model of opportunity navigation to be proposed. This “intimation spiral” extends existing static typologies of strategic cognition and outlines the cognitive process that the strategists undertook when navigating a new opportunity, including phases of intimation, investigation, validation and incubation.

It was also found that the participant’s entrepreneurial intuition was often deployed to evaluate other people in the process. This research sheds new light on how the strategist’s confidence in themselves, their own organisation, other parties, and the external network are related through the creative actions undertaken.

The strategic timing of opportunities was also a significant area where entrepreneurial intuition was found to be deployed and a range of temporal factors were uncovered such as adoption rate, opportunity cost, reward profile, need for speed, control of timing and organisational readiness. Examining the temporal structures the strategists employed in practice, such as event time, clock time and cycle time and how these relate to the strategic issue of entrainment, or synchronisation, helps build on existing theoretical work in this area.

In addition to opening the door for further research in this area, the findings have implications for strategic practitioners in terms of helping increase metacognitive awareness, offering a means of building confidence in opportunities and highlighting different aspects of timing which may be crucial to the success of a strategic opportunity.

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# 1 Introduction

*“It is by logic that we prove, but by intuition that we discover”*

- Henri Poincare (1929)

In a world of exponentially increasing data (McAfee & Brynjolfsson, 2012), are people actually making better decisions? With the amount of information now available how can we actually make sense of all the data (Klein, Moon, & Hoffman, 2006)? And in this data rich environment, what part does emotion and intuition play in our judgement and understanding of the world around us (Hodgkinson & Healey, 2011)? Some have suggested that because of the sheer amount of data now available, intuition may be more important, not less, in order to find meaning and insight in the myriad of information (Marder, 2015; Shah, Horne, & Capellá, 2012).

For business strategists and particularly for strategy academics there has historically been an emphasis on analysing an environment or situation and so from that perspective more data, which enables more analysis, may be considered helpful (Mintzberg, Ahlstrand, & Lampel, 1998). It has been argued however that good strategy comes not from pure analysis but from synthesis and insight (Mintzberg, 1994; Rumelt, 2011). In light of the above questions the recent perspective of strategy as practice, and its pragmatic focus on how a situated individual navigates and synthesises information (Johnson, Langley, Melin, & Whittington, 2007; Whittington, 2006), is a highly relevant viewpoint to examine this area. This study will therefore adopt the strategy as practice perspective, to examine the role of intuition in strategic practice.

This introductory chapter will provide a background for the research, the research aims and core question and a justification for the approach. The introduction will conclude with a description of the structure of the thesis that follows.

## 1.1 Research background

The research journey that this thesis describes, took place in a part time capacity from late 2012 through to late 2017. In 2012 when searching for a research question that would be interesting and relevant within the strategy field an early spark was provided by Leif Melin (2007) in his comment that, “*Established views on strategy making most often emphasize analytical practices and tools, while practices of intuition and creativity are still largely unexplored*” (p.217). In exploring this further it was discovered that intuition, although widely used and acknowledged to varying degrees in management and strategy, is an under-researched area with particular relevance to the field of strategy as practice (Hodgkinson & Clarke, 2007). Recent developments in the field of managerial cognition suggest that intuition is a multi-faceted concept that may have a large bearing on many strategic decisions (Gore & Sadler-Smith, 2011). Of particular interest to strategists working in dynamic environments is how intuition can be used to help make sense of the world around them and in doing so how this can help in the identification of strategic opportunities (Mintzberg et al., 1998). This future opportunity focussed intuition can be defined as “entrepreneurial intuition” (Crossan, Lane, & White, 1999), which is distinct from “expert intuition” (H. Simon, 1987) where having seen a pattern or situation previously an expert knows intuitively how to respond. It was decided then that this study would focus primarily on the use of entrepreneurial intuition by strategists in practice as this aspect of intuition had yet to be fully explored.

One reason for entrepreneurial intuition being under-researched at the current time, particularly in practice settings, is that it is a difficult concept to research due to being intangible and pre-verbal in nature. In order to adequately examine this topic then several key methodological choices had to be made early in the research design. The specifics of the final methodology employed are described in full detail in chapter 3 but several options were considered as part of the research journey and so are discussed here. The first key issue with researching entrepreneurial intuition is it does not occur at a specific time or place. Several possibilities were then considered for how to gather the data in such conditions, such as field ethnography, creating a simulation, or approaching a large number of participants in the hope that some would be at the right time. Ultimately however a longitudinal multi-participant method (Eisenhardt, 1989a; Saldana, 2003; Yin, 2009) was selected as this would allow for capturing of change over time which would allow for examination of the dynamics at play, while being consistent with the philosophy of strategy as practice (Johnson et al., 2007).

The second key decision was specifically who to study. Clearly in order to study opportunity focused aspects of intuition strategists who were actively seeking opportunities within dynamic environments would make the best candidates. Strategists within the high-tech sector were chosen as the generally fast paced nature of the environment (Christensen, 1997; Eisenhardt, 1989b) would allow for change to take place and opportunities to emerge and be explored within the time available for the data collection phase. The researcher's background in this sector would also allow for a high level of trust and rapport which it was felt would be required in order to gain the rich data necessary.

The third key decision was which data collection method(s) to employ given that entrepreneurial intuition is difficult to articulate or identify. Again full details of the final

methods are described in chapter 3 but several options were initially considered. Repeated interviews, structured or semi-structured were one option, however difficulty in articulating intuition made this less desirable. Some form of structured survey tool was considered but it was felt this was unlikely to gather sufficient depth of information to provide insight. Ultimately then the use of cognitive maps was decided on as a useful means of capturing participants perceptions of their strategic environment (Ackermann & Eden, 2011; Huff, 1990). Cognitive maps have been employed in many strategic settings and while not often used in longitudinal studies, are well suited to this style of research (Huff, Narapareddy, & Fletcher, 1990). Some means of triangulation (Yin, 2009) was also desirable and so a cognitive style questionnaire and repertory grids were also employed. Along with each of these data types themselves all conversations would be recorded for transcribing, coding and analysis of themes (Miles & Huberman, 1994).

Some early emergent themes from the research and the methodology for this study were presented at the Strategic Management Society Special Conference in Sydney, December 2014 (C. Walsh & Knott, 2014). No further results from the study have been published to date.

## **1.2 Research aim and question**

The understanding of entrepreneurial intuition is under-researched at the current time with several calls for closer examination. Much of the research to date involves theoretical development or laboratory experiments with little empirical research from field based studies. Sinclair, Sadler-Smith and Hodgkinson (2009) state that, *“The ways in which intuition, and in particular the role of mental simulation, operates in the business venturing context to*

*foster creativity, innovation and entrepreneurship is an area which requires further research” (p.406). Sinclair more recently (2010) mentions, “There is another process that involves future events, which I call intuitive foresight. Although not much is known about its inner workings at the moment.” (p.383). Blume and Covin (2011) also state, “The relationship between intuitive ability and opportunity recognition ability would seem to be strong and worthy of empirical examination.” (p.148).*

Therefore, the aim of this study will be to uncover how individuals use their entrepreneurial intuition in assessing and developing strategic opportunities in practice. The key research question that will be addressed is:

- How do strategists actually utilise entrepreneurial intuition in the opportunity sensing process?

### **1.3 Justification**

Strategy as practice is well placed to examine the role of strategist’s intuition but this has yet to take place. The focus on the situated individual that strategy as practice encourages allows for an examination of individual practices such as cognition (Jarzabkowski, Balogun, & Seidl, 2007), of which intuition is a significant part. Despite this there is still a significant gap in the literature relating to how intuition is actually used in strategic practice. Further to this Regnér (2008) notes that “...it is exactly creativity and imagination that a processual and dynamic view of strategy needs... the strategy-as-practice approach has the potential to address the question of creativity and imagination...” (p.579). It has also been suggested that in order to advance strategy as practice research simply observing practitioners in action is not sufficient but a deeper analysis of their underlying cognitive practices is required



(Hodgkinson & Clarke, 2007; Wright, Paroutis, & Blettner, 2013). This study is intended to advance strategy as practice research in this area.

## **1.4 Thesis outline**

This thesis continues with Chapter 2 reviewing the extant literature relating to intuition from psychology, such as dual process theory, the multi-faced nature, heuristics and creativity. The literature specific to intuition in management studies is then examined such as the expert view, entrepreneurship and tacit knowledge. Then the literature relating to intuition in strategy is discussed such as the practice perspective, sensemaking and the dynamic capabilities view.

Chapter 3 outlines the methodology employed. This includes the philosophical foundations, theoretical structure, rationale and research design (Saldana, 2003, 2011; Yin, 2009). The philosophical foundation of the study, and for strategy as practice generally (Johnson et al., 2007), is based on pragmatism. Dual process theory (Epstein, 1998) from psychology and creative action theory (Joas, 1996) from sociology provide the theoretical structure. The research method itself consists of an abductive approach (Blaikie, 2000) and longitudinal multi-case design (Yin, 2009) with use of causal cognitive mapping of individual participants over time (Huff, 1990).

Following this, Chapter 4 outlines the analysis of the collected data. This includes a rich description of the data from the seven individual participants, and within case and cross case analyses (Eisenhardt, 1989a; Miles & Huberman, 1994). Higher order concepts

emerging from this analysis are described and contrasted with Hodgkinson and Healey's (2011) dimensions of strategic cognition. In keeping with the pragmatic orientation of this study the emergent concepts and the existing static model are examined from a dynamic and recursive process perspective (Farjoun, Ansell, & Boin, 2015). A theoretical synthesis is also described to allow a new model of cognitive practice, referred to as an intimation spiral, to emerge. This emergent model, which extends Hodgkinson and Healey's (2011) static typology of strategic cognition, revolves around the process that the strategists in the study went through when navigating their opportunities.

Chapter 5 provides a detailed breakdown of the intimation spiral model, and tests this with the case data. Related theories from adjacent disciplines such as knowledge management and organisational learning are also examined for similarities and differences. The significance of strategic momentum (Amburgey & Miner, 1992) is discussed along with comparisons of intimation spirals where opportunities were progressed and some where the opportunity was discarded.

Chapter 6 describes the role of intuition in people based judgements, which emerged as a common concept from the data. This is compared with established theories such as escalation of commitment (Staw, 1981) and entrepreneurial over-confidence (Townsend, Busenitz, & Arthurs, 2010). How different people may be at different stages in their intimation spiral and the role of metacognition (Flavell, 1979) is discussed. The importance of various types of confidence (Kanter, 2004) are then examined and the central role of creative action presented.

Chapter 7 describes the role of intuition in judgments around timing. External windows of opportunity are discussed along with aspects of internal timing. The balancing of

a range of external temporal factors and internal temporal factors are positioned as key strategic decisions. A cross-case analysis of different strategic orientations revealed a different temporal pair of internal and external factors of primary concern. The notion of temporal structures is applied (Orlikowski & Yates, 2002) and event time and cyclic time revealed as significant structures for the strategists. The notion of entrainment (Ancona & Chong, 1996) in particular is examined and found to be highly relevant.

The thesis concludes with Chapter 8 where the theoretical contributions are discussed along with limitations of the study. Implications for further research and relevance for strategic practitioners are also presented ahead of the concluding remarks.

## 2 Literature Review

In this chapter the extant literature relevant to this study will be reviewed and discussed. The first section will examine current knowledge relating to intuition in psychology, such as dual process theory, the multi-faceted nature of intuition, heuristics and creativity. The second section then will examine intuition as has been examined in management studies, particularly the expert view of intuition, entrepreneurship and tacit knowledge. The third section will then look into intuition specifically as it relates to strategy and covers the practice perspective, sensemaking, the dynamic capabilities, micro-foundations and behavioural strategy fields. Finally in summary the gap in existing knowledge is highlighted which has led to the key research question for this study.

### 2.1 Intuition in psychology

Intuition has deep philosophical roots going back to Aristotle, where his term *nous*, can be translated as intuitive reason (Bolton, 2014). Recent advances in the field of psychology have relevance for the study here, particularly the development of dual process theory, recent acknowledgement of intuition as a multi-faceted concept, the heuristics perspective and also theory from creativity.

The definition of intuition and related sub-conscious processes has been an area of some contention however the majority now accept the definition developed by Dane & Pratt. This states that intuition is *“an involuntary, difficult to articulate, affect laden recognition or judgement based on prior knowledge which is arrived at rapidly, through holistic*

*associations and without deliberate or conscious rational thought.*” (Dane & Pratt, 2007, p. 40). As discussed below however this assumes a single type of intuition, and this definition describes what can be referred to as expert intuition. This is as opposed to entrepreneurial intuition which can be defined as that which supports exploration of new ideas, novel connections, emergent relationships and is required for innovation and change (Crossan et al., 1999). There are several other sub-conscious cognitive processes that should not to be confused with intuition (Hodgkinson, Langan-Fox, & Sadler-Smith, 2008). Tacit knowledge is a description of knowledge that is acquired consciously but stored subconsciously (Polanyi, 1968). Instinct is used to describe fast unconscious reflexive responses to particular situations and insight is a sudden realisation of a solution following an impasse and a period of subconscious incubation (Duggan, 2007; Hodgkinson et al., 2008). Intuition is generally recognised as an antecedent of creativity (Dörfler & Ackermann, 2012).

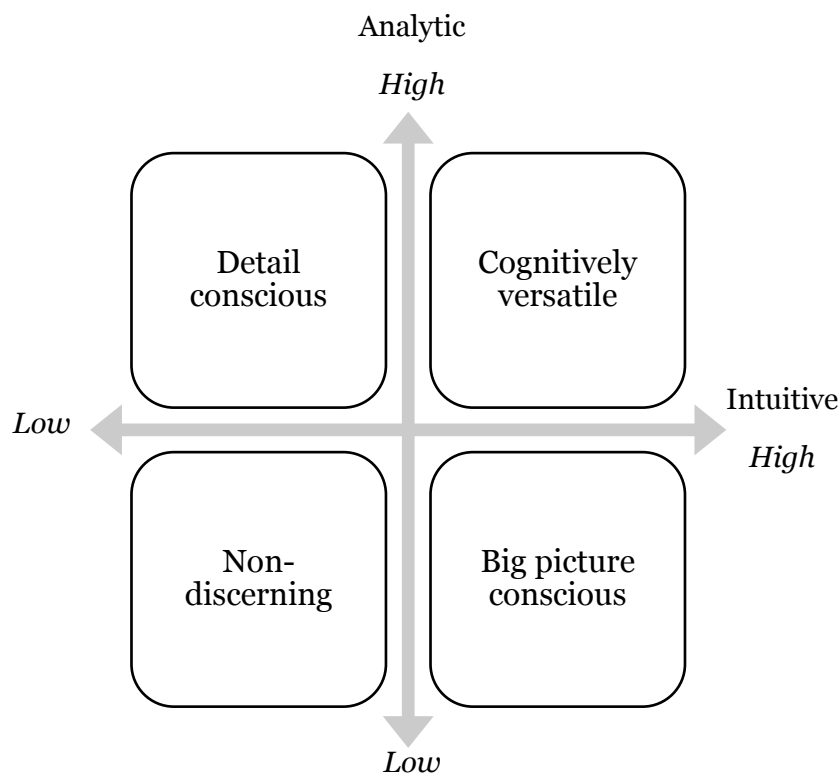
### **2.1.1 Dual process theory**

In the 1970’s and 1980’s cognitive psychologists proposed that the activities in the brain may have a degree of hemispherical specialisation, namely that the left half of the brain performed more analytic tasks, and the right half of the brain was responsible for intuition and more creative thought processes. This simplification was adopted by the popular media, including some management scholars, encapsulated in Mintzberg’s description of planning being a left brain activity while managing was a right brain process (Mintzberg, 1976). The general perception regarding hemispherical specialisation remains today despite evidence and general consensus from psychologists that this is not actually the case (Corballis, 1999). Modern cognition studies and the use of functional magnetic resonance imaging have shown that subconscious and conscious thought processes actually work in tandem more than

previously described and this had led to the range of dual process theories. Dual process theory in essence considers that the subconscious (system one) and conscious (system two) processes occur simultaneously in the brain and that while some thought processes lend themselves more to one system than the other generally both are employed to some degree in most thought processes (Duggan, 2014; Hodgkinson, Sadler-Smith, Burke, Claxton, & Sparrow, 2009; Kahneman, 2011). Cognitive-Experiential Self Theory (CEST) developed by Epstein is one of the most widely accepted dual process theories and describes system one as the experiential system. This is an older part of the brain, in evolutionary terms, and at its basic level deals with rapid, automatic responses. At its higher levels however and in particular where it interacts with the rational system two, or cognitive system in CEST terms, it is a source of intuitive wisdom and creativity (Epstein, 1998). Social cognitive neuroscience is a more recent dual process variant and describes system one as the X-system or reflexive, and system two as the C-system or reflective (M. D. Lieberman, 2000, 2007; Ochsner & Lieberman, 2001). Dual process theory will be employed as one of the key theories forming a basis for the research.

This study is not intended to delve into the inner workings of the brain and concurs with Herbert Simon's comments that, "*The important questions for us what is intuition and how is it accomplished, not in which cubic centimetre of the brain tissue does it take place*" (H. Simon, 1987, p.59). However, there are two important implications from dual process theory that will influence this study. The first is diversity of cognitive styles that the dual process theory implies. As described by Hodgkinson and Clarke (2007), the combination of Analytic and Intuitive styles of cognition leads to a general typology that should be utilised in the analysis of strategic practitioners. This typology is shown in Figure 2-1 below. Note that

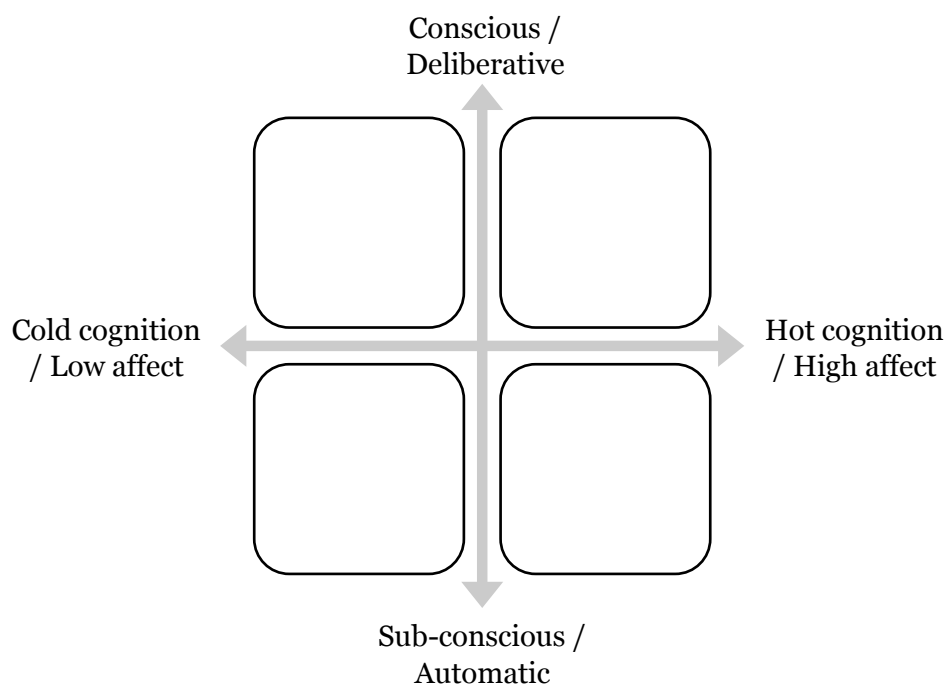
in this typology “intuitive” refers to system one, and “analytic” refers to system two processes.



**Figure 2-1. Typology of contrasting cognitive styles. (Hodgkinson and Clarke, 2007, p246)**

The second important factor from dual process theory is how the different cognitive styles can be measured. In this area the Rational Experiential Inventory (REI) was developed as a component of the Cognitive-Experiential Self Theory (Epstein, Pacini, Denes-Raj, & Heier, 1996; Pacini & Epstein, 1999). REI uses a series of 40 questions to evaluate an individual’s engagement and ability on two scales. The first is need for cognition. This gives a measure of the individual’s preference for and use of rational, i.e. system two, processes. The second scale is the faith in intuition. This gives a measure of the preference and use of experiential, i.e. system one, processes. The REI measure has been tested for validity and has met with general acceptance (Björklund & Bäckström, 2008; Hodgkinson, Sadler-Smith, Sinclair, & Ashkanasy, 2009).

Within the general term “dual process” there are a large number of specific theories that deal with the distinction in sub-conscious and conscious process in slightly different manner and over time there has emerged two orientations of dual process theories (Evans, 2008). Firstly there are those that are focussed on the limitations of sub-conscious processes and the role conscious processing takes place in order to overcome the shortcomings of intuitive judgement. This is broadly represented by the biases and heuristics school (Kahneman, 2011) and Evans (2008) describes this orientation as the default interventionist version of dual process. Whereas the contrasting view, which views the two systems as working in parallel but with clearly distinct characteristics, he refers to as parallel competitive. Cognitive-Experiential Self Theory (Epstein, 1998) and more recently social cognitive neuroscience (M. D. Lieberman, 2007) fall into this category. Following social cognitive neuroscience in particular Hodgkinson and Healey (2011, 2014) highlight the importance of affect and emotions stemming from the sub-conscious in examining strategic decision making. They propose an updated version of the axes in their typology of strategic cognition in order to describe these elements, as shown below in Figure 2-2. This updated typology forms the basis of later analysis.



**Figure 2-2. Updated dimensions of strategic cognition (Hodgkinson & Healey, 2011, p.1503)**



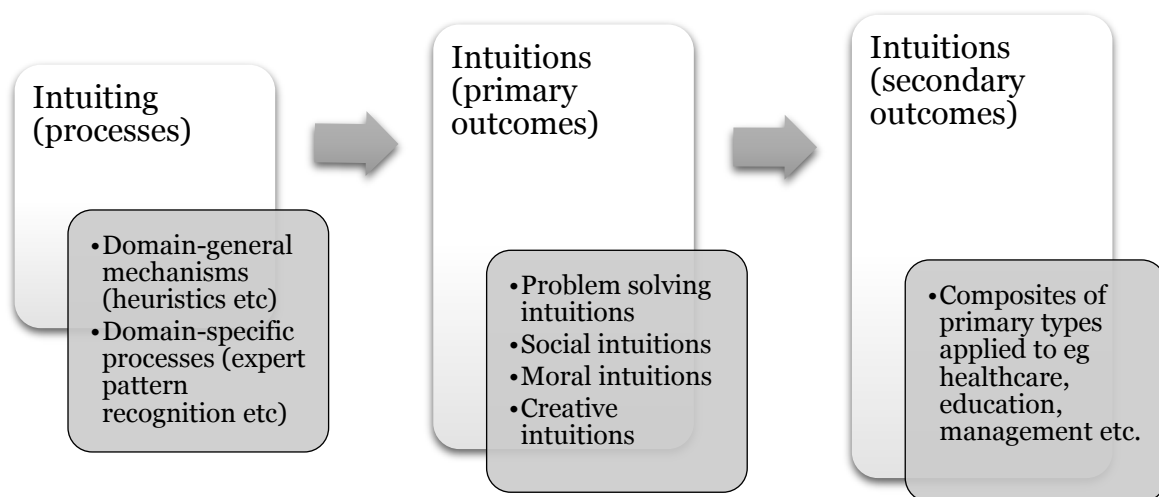
### **2.1.2 Intuition as a multi-faceted concept**

The concept of entrepreneurial intuition as distinct from expert intuition was introduced in by Crossan et. al. as a part of their Intuiting-Interpreting-Integrating-Institutionalizing, or four I's, model of organisational learning (Crossan et al., 1999). March has described the trade-off that often occurs in organisations between exploration and exploitation and balance required when seeking new learning (March, 1991). Crossan et al then define entrepreneurial intuition as intuition which supports exploration of new ideas, novel connections, emergent relationships and is required for innovation and change. Expert intuition on the other hand, as mentioned earlier, supports exploitation of recognised patterns based on previous experience. Entrepreneurial intuition is the starting point for the four I's model and is an individual process the outcome of which can only be described in terms of images and metaphors. This is because the sub-conscious nature of the intuition is pre-verbal and only through the individual interpreting phase can the intuition be described with language. The other output of the interpreting phase is the formation of a cognitive map. The integrating phase is then a group level process where shared understandings are developed as a result of conversations and other interaction. Finally the institutionalizing phase is an organisational level process where routines and procedures are adopted and so the learning becomes ingrained in the organisation. It is noted that while most easily described as a linear process, this is unlikely to be the case in reality and that there is much interaction between the phases. In this study the individual phases of intuition and interpreting are of direct interest and where the attention will be focussed.

The counter argument to entrepreneurial intuition being distinct from expert intuition is that some entrepreneurs build up their expertise over time and that the intuitive recognition of new opportunities is a form of pattern recognition based on expert entrepreneurial schemas (Blume & Covin, 2011). Four aspects have been proposed as being necessary for the development of such skills. The first aspect is previous entrepreneurial experience. The more previous experience that an individual has, the more likely they are to have seen similar circumstances and then intuitively sense where opportunities may lie. The second aspect is domain relevant knowledge. This is generally recognised to be a foundation for the development of complex schemas (Dane & Pratt, 2007). The third aspect is metacognitive skill. Metacognition refers to an individual's knowledge about their own cognitive processes (Flavell, 1979; Tarricone, 2011). It is proposed that individuals with greater metacognitive skill learn, both implicitly and explicitly, more effectively because they are able to monitor and adjust accordingly. This in turn may aid in their understanding of when and where the use of intuition is more likely to be effective. The fourth aspect is emotional intelligence. Because emotions are linked to the intuitive process the ability to be aware of, and control such emotion is key to the effective use of intuition (M. D. Lieberman, 2000).

The most recent developments in the study of intuition in managerial cognition studies support the view that intuition is not a single phenomenon and that there is a distinct opportunity focussed entrepreneurial intuition. Sinclair refers to this as intuitive foresight and has proposed a framework for categorisation of intuition into three broad areas: intuitive expertise; intuitive creation; and intuitive foresight (Sinclair, 2010, 2011). This framework will be described in further detail the methodology chapter which follows. It is acknowledged that entrepreneurial intuition has not been studied to the extent of expert intuition and as such several questions about its characteristics remain unanswered (Sinclair et al., 2009). It has

also been suggested that there is a need to distinguish between the process of intuiting and various intuitive outcomes (Dörfler & Ackermann, 2012). Gore and Sadler-Smith have proposed there are four primary types of intuitive outcome: problem-solving, social, moral and creative. Intuition as used in management is described as a secondary composite type outcome in their intuition process and outcome framework as shown in Figure 2-3 below (Gore & Sadler-Smith, 2011).



**Figure 2-3 Multiple facets to intuition (Gore & Sadler-Smith, 2011, p. 305)**

Understanding of entrepreneurial intuition is under-researched at the current time with several calls for closer examination. Sinclair, Sadler-Smith and Hodgkinson (2009, p.406) state that, *“The ways in which intuition, and in particular the role of mental simulation, operates in the business venturing context to foster creativity, innovation and entrepreneurship is an area which requires further research.”* Sinclair (2010) has proposed intuitive foresight as a forward-looking intuition although acknowledges that not much is known about this at present. Blume and Covin (2011, p.148) also state, *“The relationship between intuitive ability and opportunity recognition ability would seem to be strong and*

*worthy of empirical examination.*” In their broad review of the field, Narayanan et al. (2010) argue that strategic cognition research has been slow to examine intuition and creativity and that this represents a good opportunity for development in future studies. The programme of research this thesis describes answers these calls.

### **2.1.3 Heuristics**

Another related area to intuition is the stream of psychology research dedicated to heuristics, or mental shortcuts. Note that while they very often have a significant sub-conscious or intuitive element heuristics are not necessarily only sub-conscious, as there may be conscious elements to the “rules of thumb” employed. Following on from the work of Simon who introduced the notion of satisficing as mentioned earlier (H. Simon, 1990), heuristics were initially conceived as generally falling into three categories (Tversky & Kahneman, 1974). The first are representatives heuristics. This is where thinking is drawn naturally toward that which is typical in a particular area and the assumption that this is a fair and accurate representation of the wider field. This can lead to biases such as the illusion of validity, base rate neglect and ignoring regression to the mean (Kahneman, 2011). The second is the availability heuristic. This is where that which easily comes to mind dominates thinking and decision making. This can lead to biases such as confirmation bias, the planning fallacy and prior hypothesis bias (Wason, 1960). The third category is adjustment and anchoring. This is where thinking is dominated by what has happened first or most recently. This can lead to biases such as escalating commitment (Staw, 1981), susceptibility to priming and narrow framing (Kahneman & Lovallo, 1993). This tradition views intuitive judgments as, *"thoughts and preferences that come to mind quickly and without much reflection,*

*occupying a position between automatic operations of perception and the deliberative operations of reasoning"* (Kahneman, 2003, p.1452).

There are now numerous heuristics and biases that are classified in the literature and so only those relevant to the research at hand will be described further here. Schwenk (1984) has identified nine key heuristics and biases associated with strategic decision making and these are explained in Table 2-1.

Name	Description	Origin
<b>Prior hypothesis bias</b>	Tendency to favour existing knowledge over new evidence. Later called confirmation bias.	Wason (1960)
<b>Adjustment and anchoring</b>	Initial guesses or provided starting points have an overly strong influence on final assessments.	Tversky and Kahneman (1974)
<b>Escalating commitment</b>	Belief that increasing investment in a current course of action will change events despite evidence that it is ineffectual.	Staw (1981)
<b>Reasoning by analogy</b>	Oversimplification of complex situations to relate to a scenario that may not be relevant.	Steinbruner (1974)
<b>Single outcome calculation</b>	Identifying a sole goal for a complex situation with many interrelated aspects and competing outcomes.	Steinbruner (1974)
<b>Problem set</b>	Rigidly using one problem solving approach that has worked before but may not be entirely relevant to a new case.	Anderson and Johnson (1966)
<b>Representativeness</b>	Overestimating how a sample can be generalised to the wider field.	Tversky and Kahneman (1974)
<b>Illusion of control</b>	Overestimating the ability to influence a situation and/or the impact of individuals involved.	Langer (1975)
<b>Devaluation of partially described alternatives</b>	Full and complete descriptions are more compelling and perceived to be more attractive, even if less relevant.	Yates, Jagacinski, and Faber (1978)

Table 2-1 Summary of heuristics and biases associated with strategic decision making (Schwenk, 1984).

Subsequently Daniel Kahneman combined dual process theory with the latest from the biases and heuristics school and his widely read book, “Thinking, Fast and Slow” (Kahneman, 2011) where he outlined many other limitations associated with intuition. It is interesting to note that in Kahneman’s construction the intuitive mind represents fast thinking, whereas in Guy Claxton’s book, “Hare Brain, Tortoise Mind” (Claxton, 1997) which is more focussed on creative thought, the hare brain is described as the busy analytic mind and the slow creative intuitions come from the tortoise mind. This differing portrayal highlights the difference between focussing on rapid expert intuition (H. Simon, 1987), and creative opportunity seeking entrepreneurial intuition (Crossan et al., 1999).

The identification of the affect heuristic (Slovic, Finucane, Peters, & MacGregor, 2002) has particular relevance for strategists (Hodgkinson & Healey, 2011). Slovic et al identified a number of reasons why our affective, feelings based, system one processes are susceptible to failures. Firstly they state that because feelings can be manipulated, these can be exploited such as through use of marketing to influence our decision making. Secondly, they state that our affective systems are inherently not good at making balanced judgments in situations that generate visceral responses. Essentially feelings take over in such scenarios. Thirdly, system one feelings are predominantly designed to evaluate current actions. It is therefore difficult to make consistent judgements about events that are far in the future without being influenced by current feelings. Also evaluating situations from the past we tend to recall those dominated by affect, where we were feeling very positive or very negative, but not the majority. Building on social cognitive neuroscience (M. D. Lieberman, 2007), Hodgkinson and Healey (2011) have proposed that high and low affect, which they refer to as hot and cold cognition, contrasted with deliberate/conscious or automatic/sub-conscious cognitive processing, define the range of strategic cognition.

In the first paragraph of their seminal work on the topic, Tversky and Kahneman state, *“In general, these heuristics are quite useful...”* (Tversky & Kahneman, 1974), however the vast majority of the research that followed has been specifically dedicated to highlighting the negative aspects, i.e. biases, that result from the use of heuristics. As a result several scholars have been critical of the so called “biases and heuristics” school as being too narrow in their view of information processing, ignoring contextual factors, and basing their research predominantly on artificial scenarios, with one-off decisions, only conducted in laboratory settings (Gigerenzer & Brighton, 2009; Gigerenzer & Gaissmaier, 2011; Hogarth, 1981; Klein et al., 2006).

A contrasting perspective of heuristics, known as the “fast and frugal” view (Bingham & Eisenhardt, 2011) identified that in many situations less-is-more when it comes to decision making and in fact more accurate decisions can come from employing heuristics. The underlying assumption linking heuristics to unfavourable biases is the trade-off between accuracy and effort. However it has been found that in some situations, beyond a certain point, even highly detailed statistical analysis starts to lose predictive validity with increasing data. This is due to overfitting to existing data. Increasing the accuracy of a model ultimately leads to an excellent description of past results, including any variance or noise in the data, but actually then produces a poorer prediction of future events (Gigerenzer & Brighton, 2009; Gigerenzer & Gaissmaier, 2011). Conditions that lead to this less-is-more situation are where there is low predictability, small samples and dependency between factors, such as can be found in many managerial contexts.



Looking specifically at the use of heuristics in strategy Bingham and Eisenhardt (2011) adopted the fast-and-frugal perspective and argue that in fact, “*heuristics are central to strategy*” (p.1458). They found in their multi-case study research that four sets of heuristics were commonly developed in strategy making. The first were selection heuristics, which were the rules of thumb describing the types of opportunities that could be pursued. Secondly there were procedural heuristics which guided the typical means of execution once the opportunity had been identified. Selection and procedural heuristics were engaged first. The third heuristic which follows is the temporal heuristic. This related to the rules of thumb about the time, sequencing, pace and rhythm of activities to capture the opportunity. Finally then was the priority heuristic where the ranking of opportunities took place. These four heuristics were then cycled through and modified as progress was made. Vuori and Vuori (2014) subsequently acknowledged the descriptive value of the “simple rules” heuristics found by Bingham and Eisenhardt, but argued that some of the underlying mechanisms proposed for their value were flawed. They argue the context of strategic decision making is quite different from those studied by Gigerenzer (fast and frugal) or Kahneman (biases), particularly with regards redundancy, stability, decision timeframe and group decisions. In response to this Bingham and Eisenhardt claim that Vuori and Vuori misinterpreted their conclusions (Bingham & Eisenhardt, 2014). They maintain that the simple rules view of heuristics in strategy allow for better improvisation by freeing up time, are easier to remember and so implemented more consistently, and are effective when specific experience is limited but correlated.

### 2.1.4 Creativity

Another related area is the study of creativity. The first model of creativity was proposed by Graham Wallas (1926) and consisted of five phases, several of which have a large intuitive element. The first phase was described as preparation, where an individual focusses on the problem at hand. Secondly he suggested there is an incubation phase during which the problem is internalised and the subconscious works on the issue. Then there is an intimation or feeling that the solution is near. Following this is the illumination where the creative solution is forthcoming to the conscious mind. Finally then there is a verification phase where the solution is checked, tested and modified by the conscious. Subsequent models (Sawyer, 2012) have retained the main elements of Wallas' original but have expanded on parts of these processes, particularly to include concepts such as divergent and convergent thinking (Guilford, 1959), bisociation (Koestler, 1977), lateral thinking (de Bono, 1977) and motivation (Amabile, 1997).

Creativity, like many of the concepts in this study, has struggled to find a consensus definition, although most agree that production of something defined as novel and useful are essential elements (Hennessey & Amabile, 2010). Amabile defines creativity as the production of “*novel and appropriate solutions to open ended problems in any domain of human activity*” (Amabile, 1997, p. 18). Elsewhere creativity is more simply defined as the generation of novel and useful ideas (Gielnik, Frese, Graf, & Kampschulte, 2012). Creativity definitions also refer to “little c”, being creativity that may be novel and useful to the individual; and “big C”, being socially unique and valuable solutions (Hennessey & Amabile, 2010).

Creativity has been historically examined in three main ways that fall within two broad approaches, those being individualist and sociocultural (Sawyer, 2012). The first view, from the individualist approach, has been that of personality psychology where the keys to unlocking creativity were thought to come from understanding the traits of highly creative people. The second view, also an individualist approach, is based on experimental cognitive psychology. This view is driven by a deeper understanding of how individuals think creatively and relies on carefully designed experiments in order to examine specific aspects and influences on creative thought. From these two individualist viewpoints creativity can be defined as something new, is a unique combination of elements and is expressed in the world. The sociocultural view however, which looks at the creativity of groups and the structures that support creative activity, defines creativity as the generation of a product that is judged to be novel and also be appropriate, useful or valuable by a suitably knowledgeable social group.

Creativity has a central part in the development of effective strategy. Michael Porter has said that, *“At some point there must be an act of creativity where someone divines the new activity that no one else is doing”* (Porter, 2006, p.6). However this aspect was somewhat neglected during the focus on the planning aspects of strategy from the 1960's onward (Mintzberg, 1994). More recently several scholars have attempted to redress this balance. Bilton and Cummings (2010) state that creativity should be at the heart of strategy and strategy should be at the heart of creativity. They suggest that creativity and strategy are both keystones of a successful organisation and describe innovation, entrepreneurship, leadership and organisation as four generic elements of creative strategy. Nonaka and Zhu (2012) argue that co-creativity is one of the six essential elements of strategy for a modern pragmatic world. They also emphasise the foundational nature of situated creativity and

creative envisioning of valued futures in order to avoid the strategic pitfalls of group think, competence traps and core rigidities. Creative improvisation has been proposed as a core strategic skill for organisations (Kao, 1997; Weick, 1998). Gielnik et al. in a recent empirical study (2012) examined the effect of creativity and divergent thinking in the generation of new business ideas and their subsequent growth. They found that quantity of new business ideas does not necessarily translate to venture growth however more divergent thinking leads to more original ideas and this does translate into more successful businesses.

## **2.2 Intuition in management**

In managerial terms the first person to describe the role of intuition was Chester Barnard. In *The Functions of the Executive* (Barnard, 1938), written while a practicing executive at the Bell Telephone Company, he described how much of managerial work is carried out on the basis of experience and intuition. Managers do not often have the full range of information available to make analytic decisions and therefore often have to rely on intuitive judgement. In later statements he describes four levels of abilities that an executive needs to develop in both themselves and others (Gehani, 2002). The first of these abilities is ordinary and specialised bodily skills. This means physical skills that may be required to carry out various functions. Second is personal knowledge, acquired through education and training. In modern knowledge management terms this relates to explicit rational knowledge. Third is professional know-how and the ability to acquire new techniques. This relates to tacit knowledge gained through experience. Barnard's ideas in this area contributed to many of the foundations of knowledge management (Novicevic, Hench, & Wren, 2002). Finally he

suggests that the top of the pyramid is reserved for judgment and specifically intuitive judgment.

### **2.2.1 Expert intuition**

Following on from Barnard, Herbert Simon studied intuition and made two key observations. The first is Simon's often quoted definition of intuition as being, "*analysis frozen into habit*" (H. Simon, 1987, p.63). He developed this view over time having studied chess grand masters and how they were intuitively able to make an immediate decision on their next move based on recognising the pattern of play. This can be described as expert intuition where the expert has amassed an internal frame of reference for hundreds of similar situations they had previously experienced. Several modern studies have also examined this phenomenon in crisis situations in workplace settings, e.g. firemen and emergency medical workers (Klein, 2009; Patton, 2003). This is referred to as naturalistic decision making. These studies suggest intuition can come from innate response, general experience, and/or focussed learning. The second of Simon's observations is the concept of bounded rationality (H. Simon, 1991). This had significant implications for the rational actor perspective which was central to economics at the time, and was the reason for Simon being awarded the Nobel Prize in Economics in 1978 (Nobel Media, 2017). If a person has a bounded ability to rationally comprehend a situation, intuition is one of the means of helping decision making when used appropriately in conjunction with analytic skills. On the other hand this also implies that heuristics or mental short cuts, will be used. Satisficing was one of the first examples of such a heuristic (H. Simon, 1990). This is where a person will decide on criteria and rather than an exhaustive search for the best solution, the first instance of that criteria

being met ends the search process. Heuristics themselves subsequently developed into their own field of research, as described in more detail earlier.

Intuition is one aspect of interest to researchers focussed on strategic cognition, which itself sits within the broader field of managerial and organisational cognition (Narayanan, Zane, & Kemmerer, 2010). Managerial and organisational cognition has traditionally been concerned with how cognitive psychology relates to organisational contexts at individual, group, organisation and industry levels (J. Walsh, 1995). It has now been applied to a broad range of topics such as recruitment, group dynamics, training, stress, motivation, cognitive ergonomics, leadership, decision making, change management and personal differences (Hodgkinson & Healey, 2008). The advances in dual-process theories of cognition as described above have led to intuition being touted as a construct that can span the many and diverse themes within psychology generally (Hodgkinson et al., 2008) and strategic cognition specifically (Hodgkinson & Healey, 2011; Hodgkinson, Sadler-Smith, Burke, et al., 2009).

### **2.2.2 Entrepreneurship**

Intuition is often linked to the action of entrepreneurs particularly in the opportunity recognition or creation process (R. A. Baron, 2006; Blume & Covin, 2011; Dimov, 2011). The field of entrepreneurship has been growing in significance (Audretsch, 2012) but has continued to struggle to find a consensus definition which is perhaps not surprising given that the field has been viewed in different ways from economists, psychologists, sociologists, business historians and policy makers (Blundel & Lockett, 2011; Campbell & Mitchell, 2012). There are three historical traditions in the entrepreneurship literature that have looked at the field with distinctly different criteria (Audretsch, 2012). The first has examined

entrepreneurship from an organisational context perspective. In this view what constitutes an entrepreneurial organisation can be defined in terms of either age, i.e. new; size i.e. small; or ownership, i.e. managed by the owner. This view has been surpassed by the second tradition which has defined entrepreneurship in terms of performance criteria. Within this tradition has been a focus on the outcome of activity with two criteria typically being evaluated, these being innovation and growth.

The third tradition has focussed on behaviour. Two key types of behaviour are of primary interest. The first is recognition of opportunities through entrepreneurial alertness (R. A. Baron, 2006; Gaglio & Katz, 2001; Kirzner, 1979) or the ability to create them. The second element is the attitude to risk and the desire and ability to exploit or commercialise the opportunity (Knight, 1921). Drucker (1985) describes the entrepreneur as someone who is constantly on the lookout for change, and is able to respond in order to turn the situation into an opportunity. With a slightly broader definition Shane & Venkataraman (2000) have arrived at perhaps the most widely agreed modern definition of the field of entrepreneurship as the study of “*how, by whom and with what effects opportunities to create future goods and services are discovered, evaluated and exploited*” (p.218), or more concisely, entrepreneurship is the process of discovery, evaluation and exploitation of opportunities. It should be noted that in adopting such a definition there is no consideration to the creation of a new organisation and therefore entrepreneurship may involve the creation of new organisations but can equally take place within an existing one. Intrapreneurship then can be defined as particular sub-category of entrepreneurship where entrepreneurship occurs within an established firm (Antoncic & Hisrich, 2003).

A contrasting view of entrepreneurship has been proposed by Sarasvathy (Sarasvathy, 2001a). In this perspective entrepreneurial action is viewed in terms of using available means to achieve a range of possible effects. This is the opposite of the traditional view where a particular desired effect is identified and then a range of means are sourced in order to cause the desired effect. As opposed to a traditional managerial thinking with causal logic then, this model of entrepreneurial thinking is referred to as effectual logic and the process as effectuation. This theory came from an experiment conducted with 27 expert entrepreneurs, each with more than ten years' experience, and had founded multiple firms including taking at least one public in the USA. The entrepreneurs had started firms ranging from \$200m to \$6.5B across a range of industries. A talk aloud method while tackling a start-up simulation exercise was used and subsequent analysis revealed only 4 of the 27 used what might be considered a traditional causal approach to defining and exploiting the opportunity situation presented (Sarasvathy, 2001b).

There are four key principles that underpin the notion of effectual logic in contrast to traditional casual thinking (Sarasvathy, 2001a). The first is a focus on affordable losses rather than predicted returns. From an effectual perspective an investment decision is made by primarily considering the acceptable downside loss at a given time, given the current means, and attempting to find as many ways as possible to experiment and learn from deploying those means. This is contrasted to the causal view where the upside return is the major consideration and whatever initial approach is required to maximise the long term gain is deemed most desirable. The second principle is the focus on strategic alliances as opposed to direct competition. Effectuation relies on working with committed partners to help shape the future rather than viewing the competitive landscape as fixed and confrontational. The third principle focusses on exploiting contingencies as opposed to only exploiting current



knowledge. A traditional causal approach would view unexpected outcomes as undesirable or a limit of what would be considered within the current capabilities. Whereas with an effectual viewpoint these results provide the opportunity to learn, create new knowledge and leverage the situation as a result. The fourth principle is to focus on controlling the means available rather than predicting the uncertain future. With an effectual perspective the focus is on what can be controlled by the individual in order to influence the future. In contrast a traditional causal view might attempt to make predictions about future situations in order to decide how to currently act. An effectual worldview is rooted in the belief that the future is neither found nor predicted, but rather made.

With regards to how intuition is used in an effectual process a subsequent study compared expert entrepreneurs with less experienced entrepreneurs (Dew, Read, Sarasvathy, & Wiltbank, 2009). The experts were found to use more effectual approaches to the situation, such as creating a more diverse range of potential markets, having a preference for partnerships, and considering more holistic issues of the business. The novices on the other hand were more likely to use causal thinking, such as accepting traditional predictive market research as a basis for decisions and chasing higher returns irrespective of affordability. Perhaps surprisingly however, given how intuition has been previously framed as a tool of the expert, the experts and novices in this study used the same amount of reported intuition in the process. The authors state that, *“the finding that experts do not revert to gut feeling and intuition suggests a need to look more closely at the domain specific factors involved in decision-making under uncertainty”* (Dew et al., 2009, p298). A recent study of entrepreneurs’ decision making when responding to critical incidents found that those in the study tended to use both effectual logic, which they suggest is more intuitive, and causal logic, positioned as more analytic, at different times (Vershinina, Barrett, & McHardy, 2017).

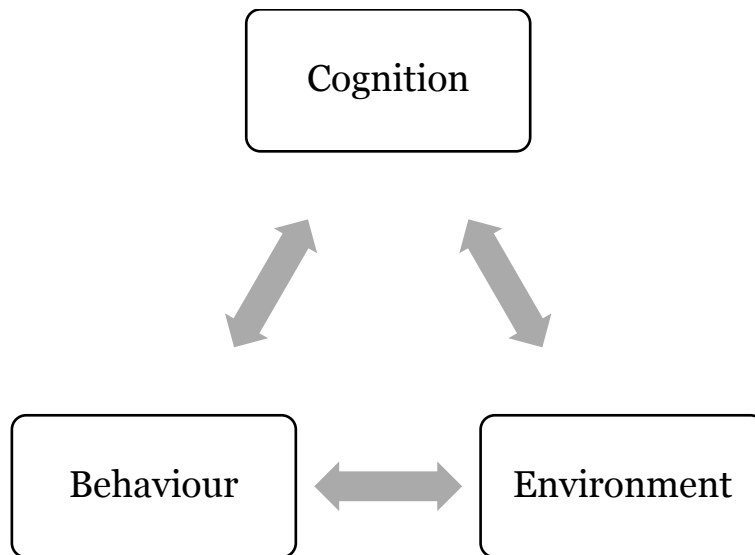
They also identified that the entrepreneurs sought advice and feedback from other people in the process of making these decisions confirming the social nature of entrepreneurial decision making (K. Miller, 2007).

It has been suggested that because entrepreneurs are more likely to encounter information overload, high uncertainty, novelty alongside strong emotions, time pressure and fatigue that they are more likely to be susceptible to a range of cognitive biases as described earlier (R. A. Baron, 1998). In particular biases associated with entrepreneurial overconfidence have been studied in some detail (Busenitz & Barney, 1997; Kahneman, 2011; Koellinger, Minniti, & Schade, 2007) and stem from illusions of validity and control. Entrepreneurial pioneering and venture formation has also been found to be associated with illusion of control, along with belief in law of small numbers, which lead to overestimating demand and competition neglect (M. Simon & Houghton, 2002; M. Simon, Houghton, & Aquino, 2000). An unresolved question has been recently asked that if an effectual approach is adopted does this mean an entrepreneur is more or less susceptible to loss aversion when focussed on affordable losses, over-trust when building partnerships, and the illusion of control when leveraging contingencies (Ye, 2016)?

While all these studies of typical entrepreneurial biases highlight various limitations, it is also acknowledged that given the uncertainty in these situations the use of heuristics has benefits, particularly where action is concerned. It is even suggested that application of heuristics and a biased view of entrepreneurial risk is required in order to encourage action (M. Simon et al., 2000). As Kahneman admits when commenting on entrepreneurs, “*When action is needed, optimism, even of the mildly delusional variety, may be a good thing.*” (Kahneman, 2011, p256). When comparing with managers Busenitz and Barney suggest that,

*“simplifying biases and heuristics may have a great deal of utility in enabling entrepreneurs to make decisions that exploit brief windows of opportunity”* (Busenitz and Barney, 1997, p14)

A deeper examination into the antecedents of entrepreneurial optimism, confidence and action leads to the concept of self-efficacy. Self-efficacy is referred to as an individual's belief in his or her own ability to be successful in a given situation (Bandura, 1997) and is part of a broader social cognitive theory (Bandura, 2001), in which the role of environment, behaviour and cognition are interrelated in a triadic relationship as shown in Figure 2-4. Bandura describes entrepreneurship in particular as relying on a strong self-belief in order to be able to deal with the stress and negative feedback encountered in new ventures (Bandura, 1997). He also raises the issue of deciding when to stop pursuing an opportunity and the dilemma this raises. On one hand a person with very strong self-belief is more likely to continue to pursue a difficult opportunity beyond what might be considered reasonable. As a result they may suffer from escalation of commitment by investing based on what has gone before, rather than the future potential (Staw, 1981). However if in the long run the opportunity is worthwhile then it would also be very costly if a person has insufficient belief in their ability to progress it and therefore abandons it too soon (Bandura, 1997; Drummond, 2014). Perceived self-efficacy has been found to be a significant factor affecting motivation and learning within organisations generally (Wood, Bandura, & Bailey, 1990).



**Figure 2-4 Relationship between behaviour, cognition and environment in social cognitive theory (Bandura, 1997, 2001)**

The underlying behavioural psychology behind the desire or motivation of the entrepreneur has also been examined in terms of intentionality. It is proposed the actions of the entrepreneur stem from their intentions, which are in turn influenced by both their analytic and intuitive reasoning based on their macro context and personal situation (Bird, 1988). Incorporating self-efficacy into this model Boyd and Vozikis suggested that self-efficacy stems from the holistic intuitive judgements and this affects entrepreneurial intentions (Boyd & Vozikis, 1994). Building on these theories Chen, Greene, & Crick examined entrepreneurial self-efficacy specifically and developed a 26-item survey tool to measure the concept based on a range of activities and roles that an entrepreneur requires skills in such as marketing, innovation, management, risk taking, and financial control. Entrepreneurial self-efficacy is defined an individual's self-belief that the tasks and roles of an entrepreneur can be carried out successfully, and this was found to be a distinguishing factor between entrepreneurs and managers (Chen, Greene, & Crick, 1998). This same tool was also used to show the way new firms make strategic decisions, in particular the degree of

decentralised decision making, comprehensiveness and use of real-time information, each have a positive bearing on the entrepreneurial self-efficacy of the founders (Forbes, 2005).

The role of intuition in the exploration of strategic opportunities is of core significance to this study. As described earlier the concept of entrepreneurial intuition as distinct from expert intuition has been proposed (Crossan et al., 1999) and how this is used, or not, by strategists is what the study will attempt to understand. It should be noted that the context for this study is strategic opportunities and so the focus is on strategic practitioners, not entrepreneurs per se. Clearly these are not mutually exclusive, however neither are they entirely analogous.

### **2.2.3 Tacit knowledge**

In his description of tacit knowledge, Michael Polanyi outlined how a significant part of individual knowledge is developed through experience and either cannot or is not articulated explicitly (Polanyi, 1968). These ideas were expanded to describe how organisations develop knowledge and the processes required to make tacit knowledge explicit and continue the cycles so an organisation can continue to learn (March, 1991; Nonaka & Takeuchi, 1995; Nonaka, Toyama, & Konno, 2000). It has been suggested that an organisation's ability to learn faster may be its only true sustainable competitive advantage (Lank & Lank, 1995; Nonaka, 1991). Intuition has an important role to play in the individual process of developing organisational knowledge (Crossan et al., 1999). Cook and Brown (1999) have suggested that organisations can be thought of in terms of individual and collective, implicit and tacit knowledge and that these four types should be seen as equal and each with their own distinct benefit. They also draw from the pragmatic tradition in

emphasising the role of action and make a distinction between knowing and knowledge where action is central to the former and the latter is possessed in order to promote action. They proposed that the interplay between knowledge and knowing can be a strong source of innovation in an organisation (Cook & Brown, 1999).

## **2.3 Intuition in strategy**

The field of strategy can be viewed from several different perspectives (Mintzberg et al., 1998; Whittington, 1996). From the 1960's the planning school was predominant. This approach was focussed on the development of analytical tools and techniques for strategic analysis. From the 1970's emerged the policy approach to strategy. This view was concerned more with strategic positioning and direction such as diversification, innovation, and internationalisation. In the 1980's a strategy process focus emerged. This view examined how organisations understand the need for change and how they actually carry it out. Finally then in the 1990's and into the 2000's a practice approach has been developed. This strategy as practice view focuses on the individuals involved in strategic work including how they both influence and are influenced by their organisational context (Johnson et al., 2007).

### **2.3.1 Practice perspective**

Strategy as practice generally is well placed to examine the role of strategist's intuition but this has yet to take place. Melin has commented that, *"Established views on strategy making most often emphasize analytical practices and tools, while practices of intuition and creativity are still largely unexplored"* (Johnson et al., 2007, p.217). Regnér

(2008) also notes that a deeper understanding of creativity and imagination in strategy is required. It has also been suggested that in order to advance strategy as practice research, simply observing practitioners in action is not sufficient but a thorough analysis of their underlying cognitive practices is necessary (Hodgkinson & Clarke, 2007; Wright et al., 2013).

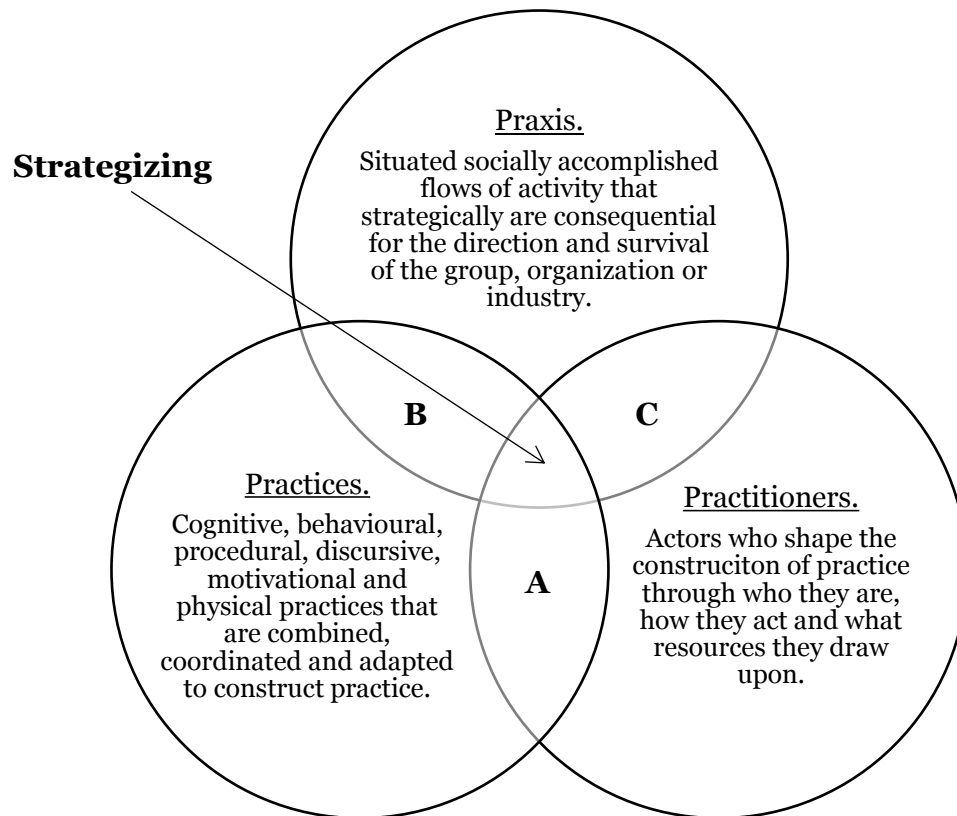
Strategy as practice draws on the underlying philosophical tradition of pragmatism (Langley, 2010). Three important guidelines of pragmatism have direct relevance to strategy as practice and this study (Johnson et al., 2007). The first aspect is the importance placed on concrete action and experience. It is practical experience and the micro activity associated with practical actions that are of foremost importance. Our words “practice” and “practical” actually come from the Greek word for action (James, 1991). Secondly, people and their potential for agency should be the focus of attention. The practitioner centric view is immediately apparent in strategy as practice by its description of strategy as something people do, not just something organisations have (Whittington, 2006). Thirdly the pragmatic view stresses the importance of knowledge as being practical and beneficial rather than an abstract intellectual search for truths. In fact knowledge is gained from practical activity and can be measured by its usefulness in guiding future activity. As discussed above sensemaking also has a pragmatic foundation which can be seen in the fact that cognition is shaped by action, and plausibility rather than accuracy are key elements of sensemaking.

Much of strategy as practice to date has drawn on the social theories of the likes of Giddens and Bourdieu (Whittington, 2006). These social theories are closely related to pragmatism and draw similar themes although with a wider societal view. In each case the

social theories are interested in activity both large and small, are situated within societies, and see actors as artful manipulators.

The focus of strategy as practice has been described in terms of practitioners, practices and praxis as shown in the conceptual framework of Figure 2-5 below (Jarzabkowski et al., 2007). A practitioner centric view places the individual actors, or strategists, in the primary focus. Many early strategy as practice studies looked at this level and while there have been several calls for a broader view the individual actor remains central to the pragmatic view of strategy. A practices view primarily examines the range of social or organisational factors from which a strategist draws experience and draws from social theories. A focus on praxis entails examining the situated instances of strategy making or execution that occur within an organisation. The framework proposed by Jarzabkowski et al. suggests that studying the interaction of two of these three areas is the most fertile area for new research. This study will be located in area A of Figure 2-5, being an examination of individual strategic practitioners and their cognitive practice of entrepreneurial intuition.





**Figure 2-5. A framework for strategy as practice research (Jarzabkowski, Balogun, Seidl, 2007, p.11).**

Several strategy as practice programmes of research have examined individual cognitive practices, often drawing on sensemaking, which is described in further detail below. Studies have examined the middle managers sensemaking in times of change (Balogun & Johnson, 2004) and in every day activity (Rouleau, 2005); interactions between individual and organisational levels of sensemaking (Stensaker & Falkenberg, 2007); framing strategic issues in uncertainty and political implications (Kaplan, 2008); and the cycle of sensemaking and sensegiving discussed earlier (Gioia & Chittipeddi, 1991). Note that in each of these cases the focus is on internal change.

Fewer studies have examined the cognitive practices of strategists in perceiving the external environment. One influential study in this area is the work of Porac, Thomas and

Baden-Fuller where they examined perceptions of competition within the textiles industry in Scotland. They found the cognitive categorisation of rivalry was influenced by mutually reinforced perceptions of the industry as a whole. They described these common mental models within the industry as cognitive communities which enacted the industry dynamics based on their shared perspective (Porac & Thomas, 1994; Porac, Thomas, & Baden-Fuller, 1989). Reger and Palmer also examined cognitive categorisation in an industry and examined how automatic and controlled cognitive processing were deployed to differing degrees in order to make sense of a turbulent environment (Reger & Palmer, 1996). They concluded that if strategists' mental models struggle to keep pace with environmental change then strategic mistakes are likely.

The need for creativity and intuition within the strategy development process is often acknowledged but this process is not well understood. In *"The Rise and Fall of Strategic Planning"* (1994) Henry Mintzberg claimed that while still necessary, strategic planning detracts from and requires quite different skills to strategic thinking. Specifically addressing intuition he states, *"The obvious conclusion to this is that to be effective, any organisation has to couple analysis and intuition in its strategy making as well as other processes"* (p.329). The use of the expert view of intuition as analysis frozen into habit is problematic in this light because if intuition is analysis, how then does synthesis take place (Langley, Mintzberg, Pitcher, Posada, & Saint-Macary, 1995). The multi-faceted nature of intuition discussed previously as recently proposed by the managerial cognition school may help to clarify this.

There have been relatively few empirical studies examining the specific use of intuition in strategy with three notable exceptions. The first is Khatri and Ng's study (2000)

which surveyed a large number of managers across a range of industries and found that intuitive synthesis was an important and often used factor in strategic decision making. The second is Eisenhardt's (1989b) study of strategic decision making in high-velocity environments. Through the use of multiple case studies this study identified that quick decision makers used more real time data than others and were more often described as intuitive. There were also other positive influences on speed of decision making such as having simultaneous alternatives, greater understanding of decision integration and also quick conflict resolution. The third is Wally and Baum's (1994) examination of the determinants of the pace of strategic decision making. The use of intuition, although a self-reporting mechanism was used, was one the key personal traits they found positively influenced rapid decision making in an acquisition situation. Overall cognitive ability, tolerance for risk and tendency for action were also positively associated with strategic decision making speed.

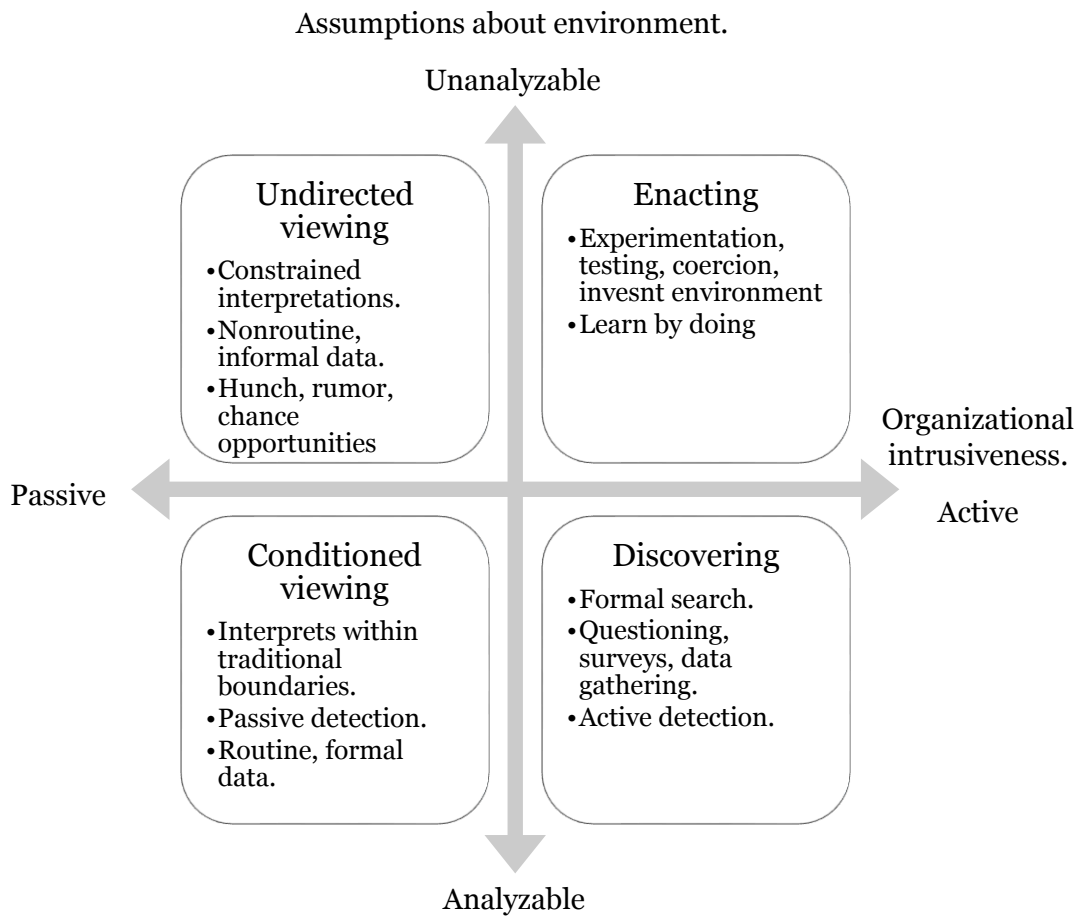
### **2.3.2 Sensemaking**

Sensemaking is described as a process that an individual or group goes through in order to understand an equivocal or uncertain situation, or *"connecting cues and frames to create an account of what is going on"* (Maitlis & Sonenshein, p.552). The process has been described in terms of seven distinct aspects (Weick, 1995). The first is that sensemaking is grounded in identity construction. Organisational identity has been described as that which is core, distinctive and enduring about the character of the organisation (Whetten, 2006). From a sensemaking perspective how we see ourselves shapes how we act and also how we interpret the environment around us, which in turn affects how others see us, which reinforces or destabilises our identity. The second aspect is that sensemaking is always retrospective. Actors are trying to comprehend uncertainty based on evidence of what has happened and

draw on their own previous experiences. The third aspect of the process is that it is enactive of sensible environments. This means that while in the process of understanding the environment individuals or organisations are also manipulating it, sometimes very deliberately for their own benefit (Daft & Weick, 1984). The fourth aspect is that it is a social process. Sensemaking is influenced by societal factors such as an individual's background, the other people involved and the prevailing organisational norms. Fifth, sensemaking is an on-going process. Gioia and Chittipeddi (1991) suggest that sensemaking works in tandem with sensegiving in order to drive a cycle of cognition and action. In addition to this we are constantly noticing and bracketing new issues from the chaos around us and so constantly engaging in new sensemaking (Weick, Sutcliffe, & Obstfeld, 2005). The sixth aspect is that the process is focussed on and by extracted cues. While sensemaking we focus on and extract cues from the environment that helps to clarify the situation. Often we may ignore cues that do not align with our emerging understanding. Do we believe something when we see it, or see it when we believe it (Weick, 2006)? Finally sensemaking is driven by plausibility rather than accuracy. Weick uses the story of a detachment from the Hungarian army which were lost for some days on manoeuvres in the Alps, who were able to return safely using a map that was found to be of the Pyrenees. The fact the map was not entirely accurate was not a major issue in that it was sufficient for the group to get moving and through action were able to understand their surroundings and find a safe route. Having an accurate environmental map is less important than having some map that brings some order to the world and encourages action (Weick, 1995).

How organisations, or more specifically their strategists, make sense of their environment is a key question for this study. Daft and Weick (1984) have proposed two dimensions which affect how organisations go about scanning their environment. The first of

these is management's belief about the analysability of the external environment. If an organisation assumes that the external environment is measurable and predictable then it will more likely engage in traditional intelligence gathering and rational analysis. If however an organisation assumes the environment is unpredictable or not able to be analysed, then it will use a different approach. The organisation will be using sensemaking processes such as enacting the environment and seeking plausible interpretations that allow for next steps to be taken. In this case, *"soft qualitative data, along with judgment and intuition, had a larger role in the interpretation process"* (Daft & Weick, 1984, p. 287). The second dimension which can affect environmental scanning is the degree to which the organisation intrudes into the environment. Some organisations are more likely to actively engage with their industry, customers, suppliers, competitors, regulators, researchers, and so on in order to test their theories in the field. Such organisations may undertake active trials to verify assumptions or push boundaries in order to manipulate the environment. Passive organisations on the other hand are more likely to accept the state of the environment as it is delivered to them and only in a crisis situation are they actively seeking information in the environment. Combining these two dimensions produces a model of organisational interpretation modes as shown below in Figure 2-6. Milliken (1987) has similarly described the types of uncertainty an organisation may have regarding its environment as being either state uncertainty relating to perception of how unpredictable the environment is; effect uncertainty relating to the extent to which the changing environment may impact on organisation; or response uncertainty associated with the range of possible responses an organisation may have.



**Figure 2-6 Model of interpretation modes for an organisation (Daft & Weick, 1994, p.289).**

Intuition has an important part to play in sensemaking as both are invoked in equivocal and uncertain situations. Weick (1998) promotes improvisation as a means of enabling improved ability of organisations to make sense of situations and intuition is a core part of improvisation. Sonenshein (2007) developed a sensemaking-intuition model which he applied to ethical decision making. Active exploration has been described as the start of the sensemaking process (R. M. Baron & Misovich, 1999) and entrepreneurial intuition is described as that which supports exploration (Crossan et al., 1999).

An important element for this study is an underlying pragmatic nature and the essential role of action. Sensemaking shares some of this action orientation, as described by Weick et al, *“if the first question of sensemaking is “what’s going on here?” the second equally important question is “what do I do next?”* (2005, p.412). Gioia and Chittipeddi’s sensemaking-sensegiving cycle also shows the cognition-action link. However a theory of action developed in sociology called creative action goes further (Joas, 1996). Although creative action shares many similarities with sensemaking, such as the role of social identity formation (MacLean, MacIntosh, & Seidl, 2015), the central focus on action is distinct. Rather than a close but causal link between cognition and action that sensemaking implies a creative action perspective states that cognition and action are actually inseparable. From this perspective then it can be argued the distinction between phases of sensemaking and sensegiving should be removed because it is actually only in the process of communicating or taking action that we develop understanding. This creative action perspective will be adopted as a key theory for this research and so will be explained in further detail in the methodology chapter which follows.

### **2.3.3 Dynamic capabilities and other perspectives on strategy**

It has been proposed that a strategy as practice perspective has the potential to advance a deeper understanding of the dynamic capability view of strategy (Ambrosini & Bowman, 2009; Regnér, 2008). The dynamic capability perspective came to prominence in the 1990’s building on the resource-based view of the firm (Eisenhardt & Martin, 2000; Teece, Pisano, & Shuen, 1997). Although there have been several definitions and debate about details (Ambrosini & Bowman, 2009) it is generally agreed that dynamic capabilities are the internal processes that allow an organisation to sense, seize and transform in a

changing environment (Teece, 2007, 2012). Dynamic capabilities have been viewed primarily at an organisational level, although there is also an emerging branch of research into the individual dynamic managerial capabilities that underpin them (Adner & Helfat, 2003). This dynamic managerial capability is supported by the interrelated factors of managerial cognition, human capital, and managerial social capital (Helfat & Martin, 2015). In examining perception as one of the micro-foundations of sensing opportunities Helfat and Peteraf (2015) only considered pattern recognition via expert intuition and so missed the potential to include entrepreneurial intuition and opportunity creation. Hodgkinson & Healey (2011) propose that a wider view of strategic cognition incorporating hot and cold cognition i.e. affect from system one feelings, alongside system two conscious deliberate analysis, is required to fully understand where dynamic capabilities come from. They propose that organisations that include intuition in their sensing capabilities will be more effective than those relying on only analytic methods.

In attempting to understand how dynamic capabilities come about there is a stream of research examining their micro-foundations. This micro-foundations perspective attempts to reconcile the individual psychological processes in an organisation, with the organisational level processes that help contribute to competitive advantage (Ployhart & Hale, 2014). There is an acknowledgement that there are some parallels with strategy as practice, however a fundamental philosophical difference remains. Strategy as practice arguably removes distinctions between macro and micro activities whereas micro-foundations research is primarily focussed on that distinction and how factors from one side influence the other through aggregation or other mechanisms (Barney & Felin, 2013).

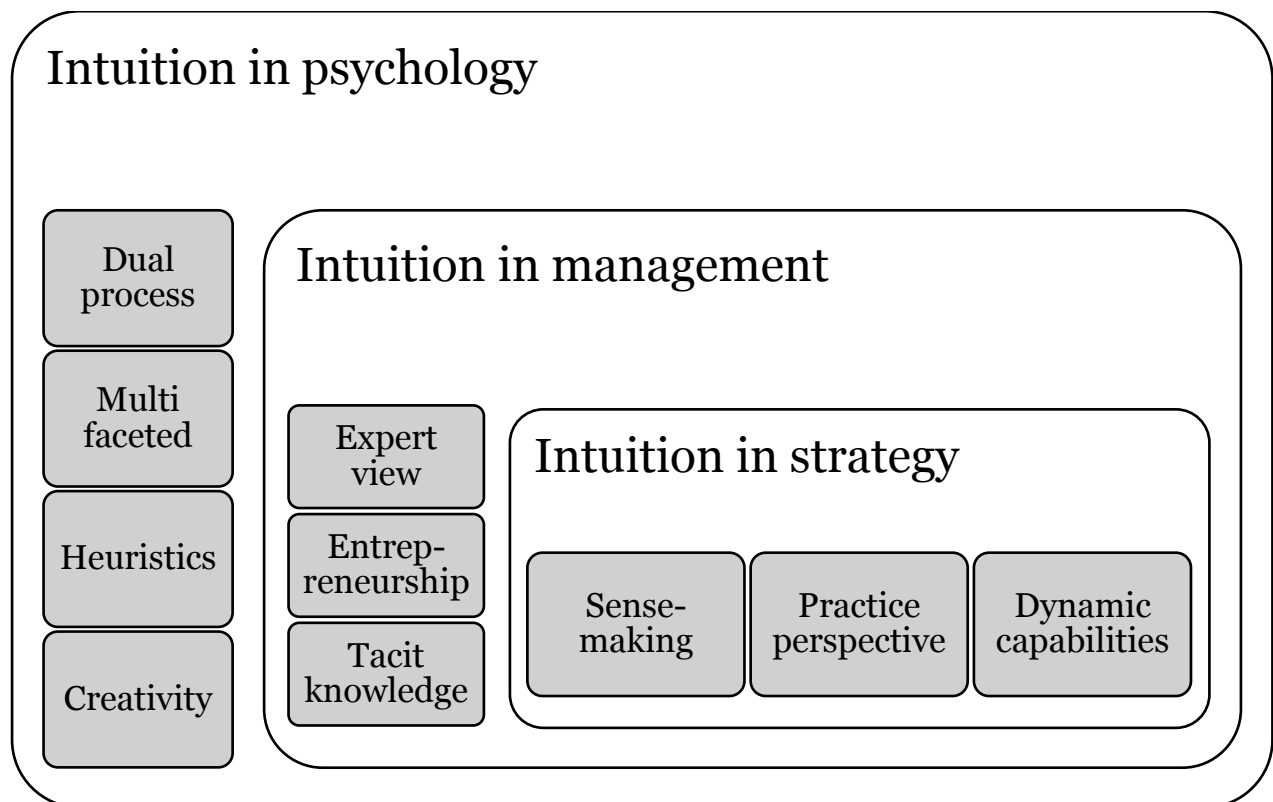


Another relatively recent sub-discipline in the strategy field is that of behavioural strategy. This has been defined as a new area that combines “*cognitive and social psychology with strategic management theory and practice.*” (Powell, Lovallo & Fox, 2011, p.1369). However it has been argued that only focussing on behavioural and cognitive factors ignores motivation, which has emerged from modern social psychology as being closely interconnected with cognition (Foss & Lindenberg, 2013). There has also been an argument against the behavioural based perspectives on the basis that they rely on a strong deterministic perspective of the environment that does not fully account for aspects such as creativity in the face of decreasing stimuli (Felin & Foss, 2011).

## **2.4 Literature review summary**

Figure 2-7 below shows how the literature specific to intuition in strategy relates to intuition in management studies generally and how this sits within the broader knowledge relating to intuition in psychology. As described above the nature of entrepreneurial intuition in a strategic setting has not been studied in detail to date. There is therefore a gap in the existing knowledge of strategists’ cognitive practices, specifically relating to those practices employed during the opportunity sensing process. This research aims to draw on the surrounding body of knowledge outlined here from psychology, management and strategy, in order to examine the specific practice of entrepreneurial intuition as utilised by strategists. This has led to the research question to be addressed by this study, namely:

- How do strategists actually utilise entrepreneurial intuition in the opportunity sensing process?

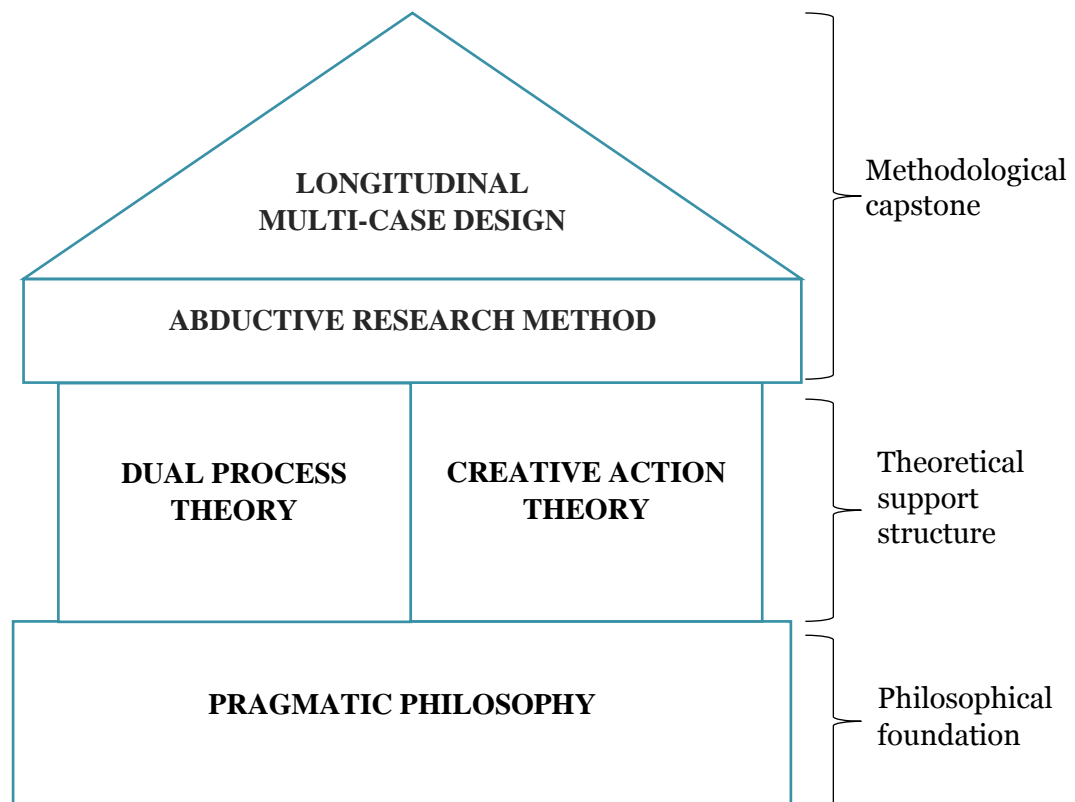


**Figure 2-7. Mapping the relevant bodies of knowledge**

In this chapter the current literature relating to dual process theory and the multi-faceted nature of intuition as studied in psychology have been described. Discussions on heuristics and creativity as they apply to this study have also been presented. Intuition in management studies ranging from expert intuition, entrepreneurship and tacit knowledge have been explored. Intuition in strategy has also been examined and discussed, in particular highlighting the practice perspective, aspects of sensemaking along with dynamic capabilities and other views of strategy. The gap in existing knowledge has been highlighted which has led to the research question for this study.

### 3 Methodology

This chapter outlines the conceptual framework for the study, including the philosophical foundations, the theoretical structure and the research methods employed (Saldana, 2011). Figure 3-1 below shows how these elements fit together to create a solid structure for this research. Each element, its selection and implications are described in the sections that follow.



**Figure 3-1. The elements of the research structure**

### 3.1 Methodology

Blaikie outlines the four most significant methods for carrying out social research (Blaikie, 2000). The inductive method is most appropriate for producing broad general theories to explain observed patterns. In this method the researcher accumulates a broad set of data and generalises from the gathered information. By contrast the deductive method is used to test the validity or otherwise of a stated theory. In this case the researcher will deduce and test hypotheses by matching data to them. The retroductive method can be used to unearth the underlying causes of observed phenomena. Using this method a researcher would document a phenomenon and construct a possible model of the underlying causes. Finally the abductive method should be used to generate social scientific concepts and theories based on actor's interpretation of events. This method relies on the accounts and experiences of participants in the field. It also develops and tests theory iteratively.

The abductive approach was selected to be the most appropriate for this study for three reasons. Firstly it has some grounding in pragmatic philosophy. The term was first used by Pierce and he described it as a separate form of logic that is a precursor to deduction and induction (Pierce, 1992). The pragmatic focus on the participants and their situated actions is consistent with the theories and philosophy of the research. Secondly, the iterative nature of the abductive method lends itself well to the multi-case longitudinal design which will be described below. In fact iteration between theory and data is seen as a key part of theory development from multiple case studies (Eisenhardt, 1989a). Elements of systematic combining, which is based in abduction, will be used as new theory is developed, tested and refined (Dubois & Gadde, 2002). And thirdly the abductive method has been specifically suggested as the most appropriate for examining strategy in practice and in particular the

strategy formulation process in order to avoid the risks of significant bias, or irrelevance (Chamberlain, 2006; Powell, 2001).

### **3.1.1 Research rationale**

This section outlines the logic or rationale underpinning the actual design of the research method itself. The nature of entrepreneurial intuition and system one cognitive processes are inherently complex phenomena to research, particularly in practical settings, due to their intangible and pre-verbal nature as described earlier. The intent of this study is to advance our understanding of the use of entrepreneurial intuition in strategic settings and so in order to best achieve this deep exploration of the phenomenon in the field is required.

Three fundamental considerations when approaching this research have implications for the design choices that follow (Yin, 2009). Firstly is the nature of the question we are seeking to understand. In aiming for a deep exploration of the role of entrepreneurial intuition we will use this to attempt to answer how this phenomenon is used, how it changes over time and why it is applied in particular situations. Secondly, in approaching this task with the pragmatists orientation leads us to focus on strategic practitioners facing their real world situations and the challenges and opportunities that they are dealing with on a day-to-day basis. In dealing with real world settings, we acknowledge that we are not in control of the events that people will encounter, as opposed to conducting a controlled experiment in a laboratory setting where the range of conditions may be controlled to suit. Closely related to this is the third aspect, which is the fact that we wish to understand the phenomenon in the contemporary time frame as opposed to a historical setting. In fact we wish to observe and gather data as close as possible to real time in order to avoid post-hoc rationalisation and

potentially false attribution of intuition which is a particular bias that many studies have suffered from, as described by Hodgkinson (2002). These fundamental considerations lead us to the case study method as being most appropriate for this research. Case studies can create rich and deep exploration of the subject matter and are most appropriate when used to focus on complex social phenomena, seeking answer how/why questions, where we do not have control over the situation and are concerned with current application (Yin, 2009). Also, a strength of the case study method is the ability to generate novel theory to help in our understanding of complex phenomenon (Eisenhardt, 1989a), as is the goal here .

For the case study method to have sufficiently robust design for this project we also need to consider how to address validity and reliability concerns (Eisenhardt, 1989a; Yin, 2009). Construct validity refers to are we in fact examining the most appropriate construct and collecting data that is relevant. Yin (2009) suggests that to ensure good construct validity a research design should aim to use multiple sources of evidence, establish a clear chain of evidence during collection and analysis, and have participants review resulting case information. Again this iteration is consistent with the abductive method described above. Internal validity for this study, which is exploratory in nature, largely refers to the strength of inferences that can be made in the analytic process. Eisenhardt (1989a) describes how using both qualitative and some quantitative data, along with iterative theory development, and drawing from literature with similar findings but from diverse fields, all help in building stronger internal validity. External validity refers to the generalizability of the findings. This is best addressed by use of a multiple case design, which allows for a broader range of circumstances to be examined and cross-case analysis to be used which builds deeper understanding of the underlying factors (Eisenhardt, 1989a; Miles & Huberman, 1994; Yin, 2009). Finally, we must also consider reliability, or how repeatable is the research method.

To assist with this all protocols and procedures should be well documented (Yin, 2009). The following section will document in detail the specific design of the data collection methods and the techniques employed with the aim of ensuring good reliability.

In addition to the depth of research data that the research question demands, there is a process and temporal aspect that is of interest, rather than just examining variance (Johnson et al., 2007). We also aim to avoid over attribution of intuition, as opposed to actual use, (Blume & Covin, 2011) by examining cases in close to real time. One means of developing rich data that will also help with the validity issues raised earlier is to employ a longitudinal design. As Saldana (2011, p.16) describes:

*“we conduct a longitudinal study for two primary purposes: to capture through long term immersion the depth and breadth of the participants’ life experiences, and to capture participant change (if any) through long term comparative observations of their perceptions and actions.”*

These areas are precisely the focus of our attention in this research and hence a longitudinal study was selected as the best method to research this in the necessary detail.

### **3.1.2 Research design**

Having outlined the rationale for the multi-case longitudinal design above, this section will describe in some detail the specific research design for each phase of the data collection process. Figure 3-2 below provides an overview of the four main stages and each will be discussed in detail.

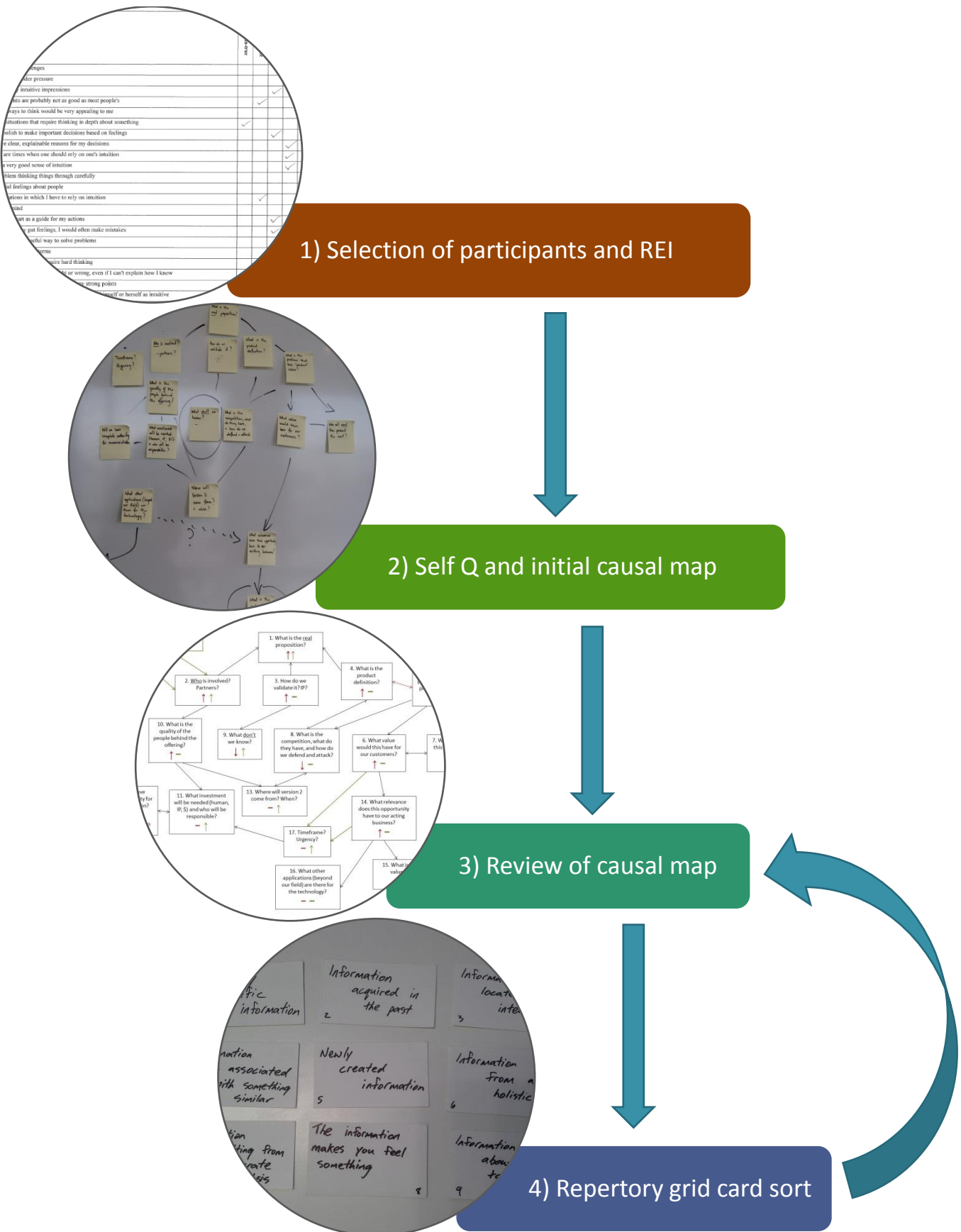


Figure 3-2. The research design



### **3.1.2.1 Selection of participants and REI**

Eisenhardt (1989a) suggests that between four and ten cases usually works well for a multi case research. Any fewer then the potential for good cross case analysis decreases, but any more than this represents diminishing returns. As described earlier one of the guidelines taken from pragmatism relates to individuals being the primary unit of analysis. For this reason, individual strategists are the focus of the study. It was therefore decided to enlist the support of six strategists to take part in the study, who were actively seeking or involved in some phase of evaluating a strategic opportunity. These individuals are referred to as the participants. The intent was then to follow their experience of deciding about the opportunity over the course of a two year period. Data collection sessions would take place once per quarter. It was felt this would give sufficient time for the opportunities to be fully explored, and potentially for new opportunities to emerge during this period. The frequency of the sessions was chosen to allow for sufficient time to have passed that some actions and change may have been carried out, but be frequent enough to capture the change as it unfolded. Also each session would focus on the thinking of the individual participant at that time, to avoid post hoc rationalisation of the opportunity which has limited the potential of some studies in this area in the past (Hodgkinson, 2002).

The selection of participants was based on several criteria. Firstly it was decided to focus on strategists within a single industry, in this case the hi-tech sector. This industry was chosen because of the rapid nature of change in the environment (Eisenhardt, 1989b) that would lead to opportunities being uncovered and evaluated within the timeframe for the data collection. The background of the researcher was also from this industry which helped build rapport and establish high degree of trust required to elicit open and candid responses. The second criteria was that the strategists be in the cognitively versatile quadrant of the dual

process typology proposed by Hodgkinson et al. (2007) described earlier. The reason for this was if we were hoping to uncover how intuition was used at different times of the opportunity process, it was necessary to ensure the participants were capable of using a balance of intuition and analysis in their thinking. In order to evaluate if they possessed this versatility the Rational-Experiential-Inventory (REI) questionnaire described earlier (Epstein et al., 1996) was carried out with the participants prior to the first session. The questionnaire is shown in appendix A. The REI has been proven to be a valid tool for this purpose (Björklund & Bäckström, 2008; Hodgkinson, Sadler-Smith, Sinclair, et al., 2009). The third criterion for the participants was that they were in fact seeking or evaluating a significant strategic opportunity at the time. As mentioned above the researcher has a background in the industry and used contacts from the local companies to find senior leaders who were actively involved in evaluating strategic opportunities, and who were willing and able to commit the time to be involved in the research. As a by-product of this all the participants were based in Christchurch New Zealand and all were CEO's or directors of technology companies from various sub sectors described below in Table 3-1. Note that while six cases/participants were initially desired, due to the change in personal circumstance of one of the initial participants, Mr C, he was unable to continue and so a replacement was sought and found. The collected data from Mr C is still included but covers only three sessions. A fuller description of each participant and their situation follows in the next chapter.

The research participants were each provided with an information sheet outlining the nature of the research, their ability to withdraw at any time and that confidentiality would be maintained. Each participant signed a consent form agreeing to take part and this process was reviewed and accepted by the University of Canterbury human ethics committee. The information and consent forms are shown in appendices B and C.

Anonymization	Role	Experience in role (or similar roles)	Area of opportunity	Number of sessions	First session	Last session
<b>Mr B</b>	CEO	20+ years	Creating new market for hardware product	6	25/06/13	23/09/15
<b>Mr D</b>	Founder/ Director	20+ years	Creating new hardware product for existing market	7	21/08/13	27/11/15
<b>Mr S</b>	CEO	16 years	Start-up creating new market for hardware product	7	28/08/13	3/12/15
<b>Mr C</b>	CEO	20+ years	New geographic market development	3	8/10/13	22/06/14
<b>Mr G</b>	Founder/ Director	17 years	Creating new software products for new markets	6	31/01/14	26/02/16
<b>Mr M</b>	Founder/ Director	17 years	Sale of company, investing in new technology	6	20/03/14	8/12/15
<b>Mr A</b>	Founder / CEO	16 years	Start-up with new software product & market	7	5/03/15	28/12/16
<b>Total</b>	-	-	-	42	25/06/13	28/12/16

**Table 3-1. Description of participants**

### **3.1.2.2 Self Q and initial causal map.**

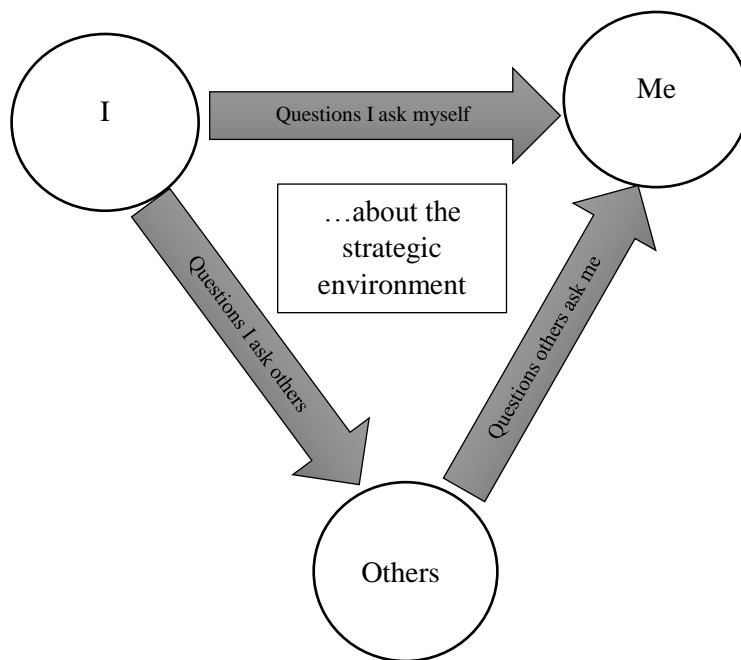
Another significant decision in the research design was which research instruments to use for the sessions with the strategists? A simple yet robust method was required that would help capture their thinking at that point in time and would allow comparison over time while avoiding the pitfalls of one-off self-reporting (Hodgkinson, 2002). At all stages the conversations with the participants were recorded for subsequent transcription, coding and analysis (Miles & Huberman, 1994; Saldana, 2011). Cognitive maps were selected as the main tool for structuring the conversations and documenting how the strategists view the opportunity space. Cognitive maps as described by Ackermann and Eden (2010) are:

*“a representation of how somebody or a group construes a situation and therefore helps them make sense of it before considering action.” (p.136)*

Cognitive maps are a recognised method of documenting how a person perceives a strategic environment and specifically causal maps not only show the significant factors in the environment but also how they are causally linked (Ackermann & Eden, 2011). By capturing individuals’ cognitive maps at repeated intervals over time, would allow for a closer examination of the areas that have undergone cognitive change. Although not often used in this way, causal maps are well suited for this purpose (Huff et al., 1990).

The maps would be initially generated with a two step process at the first session. Firstly in order to create the nodes for the map the Self-Q method was utilised (Bougon et al., 1990). This method was chosen to ensure low errors of commission, i.e. things are included that should not be, in favour of errors of omission, i.e. leaving out some things that should be included (Hodgkinson, Maule, & Bown, 2004). The reason for this being we are primarily interested in the change in maps from one session to the next over time, and so any significant nodes omitted initially would be captured in the subsequent session. Also the Self-Q method claims to be able to generate a large number of constructs with as little interviewer bias as possible. Given the over attribution of intuition and interviewer influence that has been seen previously these were important considerations (Blume & Covin, 2011; Hodgkinson, 2002). Combining Self-Q with causal mapping has also proven effective previously in strategy as practice research (Ambrosini, 2003). Following some instruction from the researcher the strategists were asked in their own words, to write down the major questions they have about the strategic space. These were written on post-it notes, one question per post-it note, in order to allow for flexible grouping later. No prompting of type of question or area took place. If participants stalled, an additional prompt was used whereby

the researcher showed the diagram below in Figure 3-3 and reminded the strategists that questions can come from three areas; those we ask ourselves, those other people ask us, and those we ask of others (Bougon et al., 1990). This would typically help generate some additional nodes.



**Figure 3-3. Self-Q stalling prompt (Bougon, Baird, Komocar, & Ross, 1990)**

Once the process of node generation was exhausted, signified by the participant not being able to add any further questions and stating that those were all the relevant ones, the second phase of the map generation was to place the nodes on a whiteboard and place similar or related nodes close to one another. Then using a whiteboard marker, the participants would draw the causal connections between the question nodes to signify the relationships between them, i.e. if the answer to one question became apparent, how would that influence the other nodes? Again after the initial instructions, this was carried out by the participant with no prompting from the researcher. During the process the participants are describing the relationships and what they mean by the particular questions. All these conversations were

recorded for subsequent coding and analysis. The participants would also add additional nodes once the initial links were made as they became reminded of some areas they may have not thought of previously. Following this complete process the map was photographed and subsequently codified by the researcher by creating a diagrammatic representation of the map. An example of a map as created during the initial session is shown below in Figure 3-4.

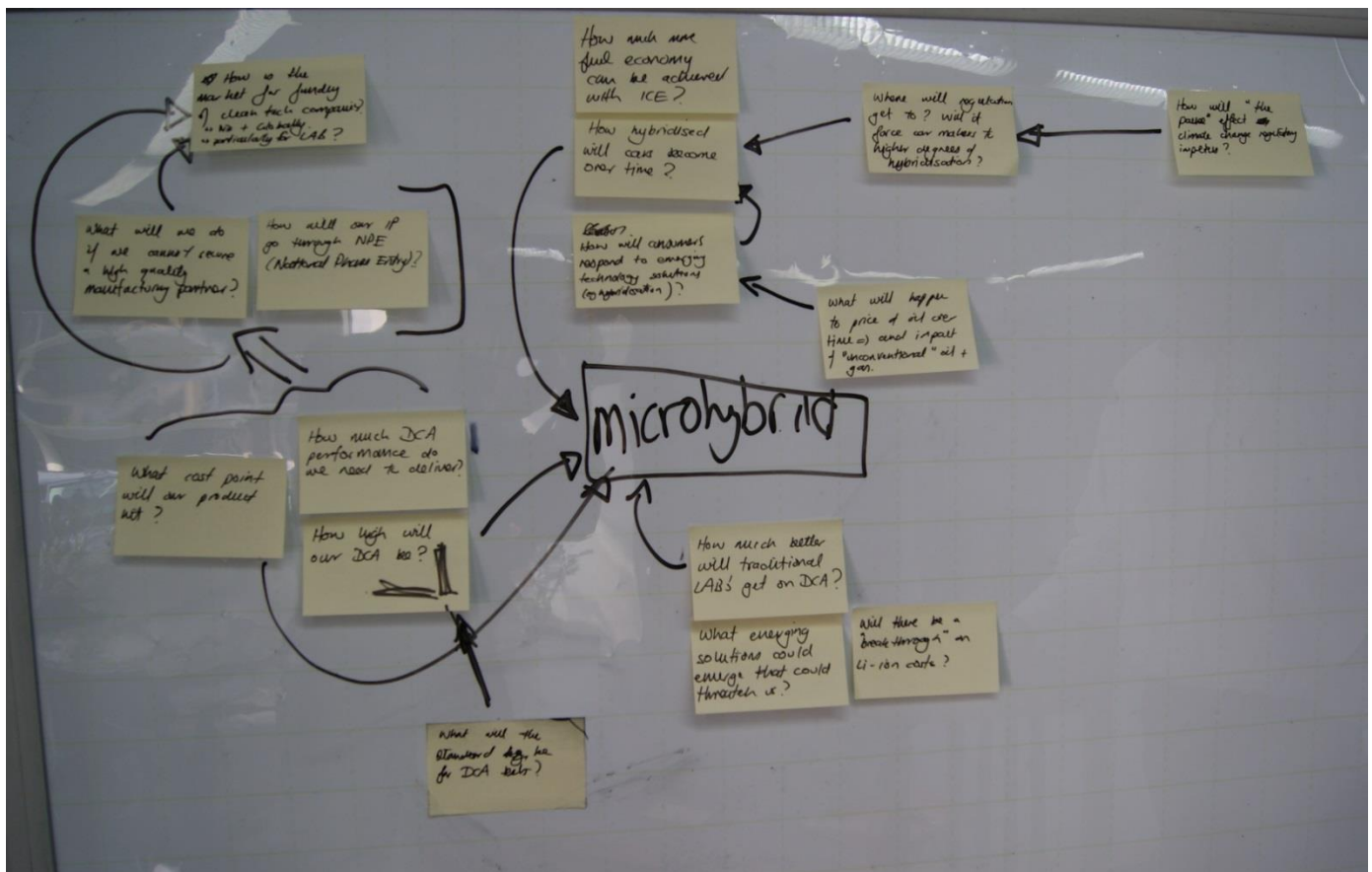


Figure 3-4. Example of initial causal map

### **3.1.2.3      Review of causal map.**

The next phase of the designed method is the structure of the repeat sessions with the subjects. As described earlier these took place once every three months over a period of two years, although in many cases due to travel and availability the timeframe was longer than three months between sessions. Each of these subsequent sessions began with a re-examination of the previous causal map in its codified version. The participants went over each node in the map, re-examined the question and indicated by arrow up/down or flat line, if they are more or less confident than previously about the answer to the question, and crucially then discussed why this is the case. The overall structure of the map and the causal links are also re-examined in order to capture any changes and/or any new nodes identified. In some cases questions had been answered and so were removed from the map completely. Again, all of these conversations were recorded for subsequent coding and analysis. At the conclusion of the participant fully reviewing the map and updating it to their current world view, they were asked specifically about the node that had changed the most, or that had been the recent focus for the participant. The question was asked if they had hard data and analysis to justify their feeling of being more or less confident about it, or if there was some element of intuition. If it was agreed that there was an element of intuition then this node was selected for the context for the next phase. Figure 3-5 below shows an example of a map that has been through two review cycles, as demonstrated by the different colour arrows. When each session was codified, a different colour was used to denote the change from that particular session.

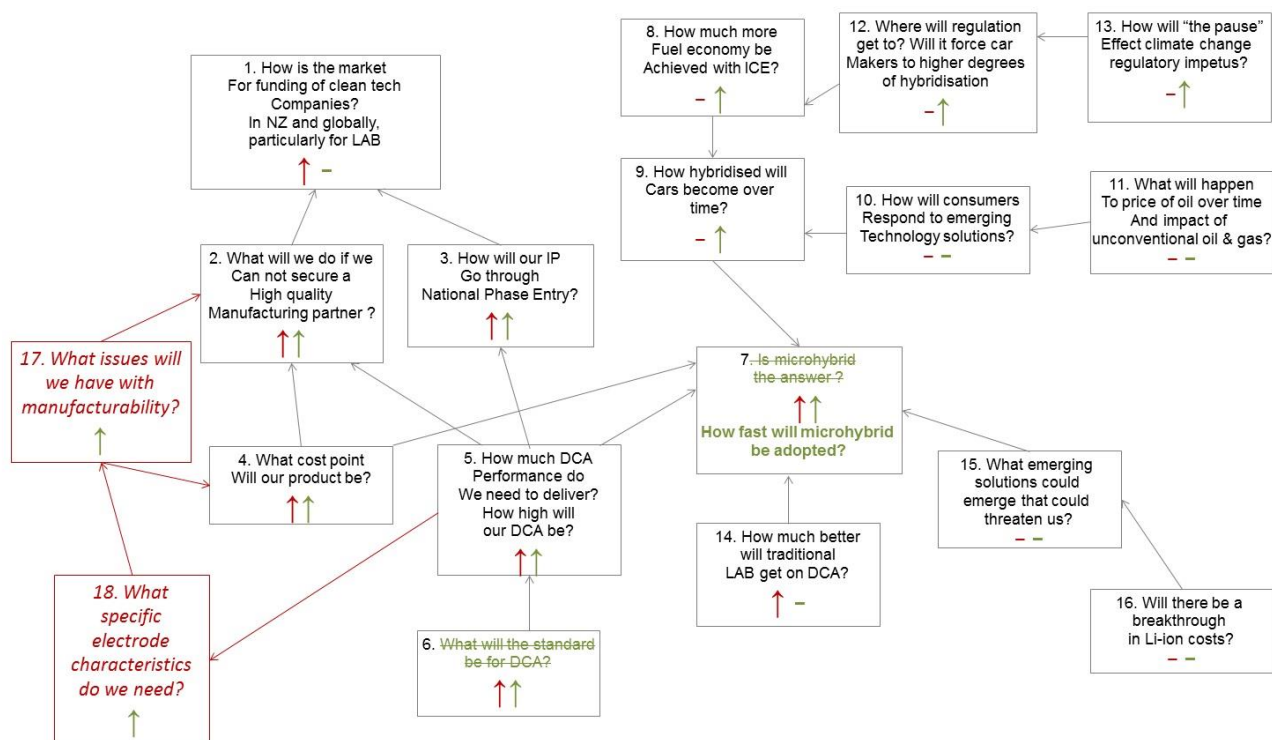


Figure 3-5. Example of codified map following two reviews

### 3.1.2.4 Repertory grid card sort

The final phase of the data collection is a deeper examination of the potential intuition area. This takes place during the second half of the repeat sessions with the participants. Because of the difficulty in articulating intuition, a structured method for eliciting further detail was required. For this reason a repertory grid technique based on Kelly's Personal Construct Theory (Kelly, 1955) was selected. Kelly's Personal Construct Theory is appropriate for analysing intuition as Kelly made no distinction between analysis and intuitive cognition. Constructs for example can be pre-verbal and have differing degrees of constriction and flexibility (Bannister & Fransella, 2013). Repertory grids have been well used in a number of other strategy research projects and the method for use in this context is well described by Wright (2008). The participant is supplied with a number of elements



written on cards, three at a time, and asked to make a distinction between them, placing one at one end of a spectrum and two at the other. The reason for the distinction created is the construct as viewed by the participant, i.e. their personal construct. The other elements, also on cards, are then placed by the participant in the same spectrum according to how they fit that construct, or not. In order to give some quantifiable difference, a one to five scale was used for the spectrum as is typical for this method. The nine elements supplied to the participants were identified as part of the proposed categorization framework for intuition (Sinclair, 2011) and were standardised as types of information in order that they be homogenous, representative and discrete as required by the repertory grid method (Wright, 2008).

In simplifying Sinclair's framework, one sub topic from each category was chosen and re-worded to fit with the information type, as described above. The particular sub topic chosen was dependant on ease of explanation of the information, and balance of different types of sub topics in the range. Explicitly:

- *Type of information*; Domain-specific expertise, became Industry specific information
- *Time acquisition of information*; Past, became Information acquired in the past
- *Location of information*; Local internal. became Information located internally
- *Processing style*; Associative, became Information is associated with something similar
- *Processing type*; Holistic, became Information from a holistic view
- *Processing system*; Deliberative, became Information resulting from deliberate analysis
- *Involvement of affect*; Dominant, became Information makes you feel something
- *Main function*; Problem solving, became Information about how to solve a problem
- *Type of outcome*; Creation of new knowledge, became Newly created information

Table 3-2 below shows Sinclair's tentative framework, and Table 3-3 shows the simplified version used for the elements in the repertory grid. While this framework naturally includes expert intuition, the other types of intuition are of most interest in this study. Note the numbers assigned to each type of information are also codified from Sinclair's framework, with ? = 1, x or x? = 3 and xx = 5. These are used in the later analysis to compare the elicited participant responses with the proposed different types of intuition.

	Intuitive expertise	Intuitive creation	Intuitive foresight
<b>Type of information</b>			
Domain-specific expertise	XX	X	XX
General experience	X	XX	XX
Cursory exposure	?	XX	XX
<b>Time acquisition of information</b>			
Past	XX	X	X
Present	X	XX	XX
Future	?	?	??
<b>Location of information</b>			
Local internal	XX	XX	x?
Local external	X	XX	XX
Nonlocal	?	?	??
<b>Processing style</b>			
Associative	X	?	?
Matching	XX	?	?
Constructive	XX	x?	x?
Creative	?	XX	x?
<b>Processing type</b>			
Inferential	XX	?	x?
Holistic	X	XX	x?
<b>Processing system</b>			
Deliberative	XX	?	x?
Experiential	X	XX	x?
<b>Involvement of affect</b>			
Low to none	XX	?	?
Some	X	X	X
Dominant	?	XX	XX
<b>Main function</b>			
Decision making	XX	x?	x?
Problem solving	X	XX	x?
Personal interaction	X	?	x?
<b>Type of outcome</b>			
Decision about existing issue/dilemma	XX	x?	n/a
Solution to existing problems	XX	X	n/a
Creation of new knowledge	?	XX	x?
Relationship impact	?	?	?
Information about the future	?	?	XX

**Table 3-2. Tentative framework of Intuition, Sinclair (2011, p14)**

Type of information	Expert intuition	Creative intuition	Intuitive foresight
1) Industry specific information	5	3	5
2) Information acquired in the past	5	3	3
3) Information located internally	5	5	3
4) Information is associated with something similar	3	1	1
5) Newly created information	1	5	3
6) Information from a holistic view	3	5	3
7) Information resulting from deliberate analysis	5	1	3
8) The information makes you feel something	1	5	5
9) Information about how to solve a problem	3	5	3

**Table 3-3. Codified simplification of Sinclair's categorisation framework**

### 3.2 Theoretical structure

Two key theories help provide this study with structure which is relevant to the research question. The first is dual process theory, which emerged from psychology to help explain the interplay between conscious and sub-conscious cognitive processes (Epstein, 1998; Hodgkinson & Clarke, 2007). The second is creative action theory, which was developed by Sociologist Hans Joas (1996) and can be used to help explain an individual's actions particularly when dealing with new situations or examining opportunities. Both of these theories and their relevance for this study will be discussed in further detail below.

### **3.2.1 Dual process theory**

Dual process theory from psychology is one of the key theories used in this research. As discussed in detail in the earlier literature review, this states that there are two systems of cognitive processing at work in the brain and these operate in parallel. System one is sub-conscious, affect based, experiential, intuitive, slow to learn, but quick to respond. System two is conscious, effortful, analytic faster to learn but slower to respond (Epstein, 1998; Hodgkinson & Clarke, 2007; M. D. Lieberman, 2007).

### **3.2.2 Creative action theory**

With the foundation of the conceptual framework being pragmatism we are concerned with the action individuals engage in to help with their understanding of their situation. There are three distinct ways of looking at action in this context. The first is rational action. This is largely the classical economic view where organisations and individuals are assumed to act in a rational fashion based on the information available to them in order to maximise their value from any particular transaction. As described earlier, the work of Herbert Simon introduced the concept of bounded rationality to economics, which undermines the traditional rational actor viewpoint (H. Simon, 1991). Acknowledging that humans have finite limits in their capacity for rational understanding and that the use of intuition and other subconscious processes are common in economic decision making challenges the fundamental assumptions of the rational actor perspective. Utility maximisation is actually not clear, or well understood, and decisions are not unemotional in the world we experience. Further to this, as discussed in the literature review, the biases and heuristics that we are all influenced by again detract from the strictly rational view of action (Tversky & Kahneman, 1974).

The second way of looking at action is as normative action. In this view, by examining the norms and patterns of behaviour that a group exhibits, actions can then be understood as being guided by these group norms. Normative action is the classical sociologist's view of the world as it is primarily concerned with the social structures, rules and routines of groups or organisations. As described earlier the pragmatist's, and also strategy as practice, orientation is to look specifically at the individual, while being aware that the individual is situated within and heavily influenced by their social environment. The normative view of action then might be thought of as a top down view. Whereas here we are more concerned with an individual, or bottom up, approach.

A third view of action is as creative action. This more recent theory was developed by Hans Joas in response to limitations associated with rational and normative views of action (Joas, 1996). There are three specific aspects of action that he proposes the previous perspectives do not account for. The first is intentionality, or emerging intention (MacLean & MacIntosh, 2012). Both the rational and normative views of action assume that there is a clear means-end relationship with any action, starting with the actor's intent. However drawing from pragmatist philosophy it is argued that rather than being a simplistic linear relationship between intention and outcome, true intentions emerge in the action itself and are adapted to the situation as it unfolds. Further to this, the action itself modifies the situation creating something new that can be re-interpreted and action itself is therefore a creative act. Central to the notion of creative action then is rather than a means-end relationship, intention is emergent and generated by action in response to situations that are in turn shaped by the actions themselves (Joas, 1996; MacLean et al., 2015).

The second aspect of creative action is corporeality (Joas, 1996) or embodied expression (MacLean & MacIntosh, 2012). Rather than make exceptions for bounded rationality as described earlier, creative action theory acknowledges that humans can only act within the limits of their bodies, both physically but also being influenced by their emotions, intuitions, biases and so on. This is obviously a key focus for this particular study. In this area there are calls for further research to examine in depth these corporeal aspects to better understand the influence of these elements, particularly in strategic settings (MacLean et al., 2015).

The third aspect of creative action is referred to as sociality (Joas, 1996), or interactive identity formation (MacLean et al., 2015). Again this has a clear link to one of the fundamental tenants of pragmatism, and in particular the work of Mead, who describes the ‘social act’ as the action and ongoing interaction of people as the key means of understanding the situations we find ourselves in (Simpson, 2009). As highlighted earlier, in contrast to a normative view of action, this is taken from the perspective on the individual acting within and being influenced by their social setting, rather than the other way around.

These three elements of creative action then come together to provide a cohesive theory of action that are consistent with the philosophical foundations of this research and creative action is therefore adopted as a central theoretical lens for the study.

### 3.3 Philosophical foundations

In examining individual strategists from a practice perspective the primary focus of the research is on the actions individuals take to understand their strategic environment, craft new strategy and implement it. Pragmatism is a philosophy founded by Charles Pierce, William James, John Dewey and George Herbert Mead that focuses on the actions and experience of people to develop practical knowledge. This has clear linkages to the strategy as practice perspective (Johnson et al., 2007; Simpson, 2009) and therefore forms the philosophical foundation for this study.

The philosophical roots of pragmatism are based in transactional realism, which rather than the traditional debate between objectivity and subjectivity that ultimately manifest in post-positivism and constructivism, views the mind and world in constant interaction and in a constant state of change (Hall, 2013). Pragmatist ontology is built around four key areas of focus (Farjoun et al., 2015). The first is an emphasis on process. In viewing the world in a state of flux and in a process of emergence allows for an appreciation of temporal factors, such as novelty and change. This constant change requires adaption, which Dewey argues we use an internal process of inquiry in order to comprehend the world. Inquiry is built around cycles of action and reflection in order to understand the world we experience around us (Morgan, 2014).

The second area of focus for pragmatists is on relationships (Farjoun et al., 2015). People and their ideas are examined more in terms of their relationships than their absolute characteristics. People are viewed as embedded in their relational context. In keeping with the focus on process, these relationships are also viewed as dynamic and subject to moulding over time.



The third area of particular interest is in recursiveness (Farjoun et al., 2015). How do the processes loop back on themselves over time is a key question for pragmatists.

Understanding the cyclical nature of processes also helps with an understanding of the relationships that may be reinforced or eroded by continual re-evaluation.

The final component of the pragmatic ontology is an anti-dualistic focus (Farjoun et al., 2015). Pragmatists believe that in reducing phenomena to competing positions misses the holistic, relational and processual nuances that can lead to greater understanding. Often they will use a mediating third factor to examine the triadic relationships, such as in Dewey's model of psychology (Winter, 2013). In particular, the founders of pragmatism rejected the dualist debate between post-positivism and constructivism. Our actions and experiences are limited by the reality of the world, and yet our comprehension of the world is limited by our understanding of those experiences. For pragmatists the nature of truth and knowledge are temporal which need to be tested through a process of inquiry involving action and reflection (Hall, 2013; Morgan, 2014). Pragmatists argue that with a purely positivist perspective no theory will be entirely objective and falsifiable, whereas with a constructivist view nearly any theory can be deemed valid. Instead, the test of a good theory should be, is it useful for helping solve human problems (Powell, 2001).

Pragmatism provides three specific guidelines for the research (Johnson et al., 2007). The first of these is the focus on action and experience. Particularly in the work of John Dewey, experience has a central and specific role in how people understand and shape their world. These experiences always involve a process of interpretation and a cycle of reflecting on our actions to form beliefs about the world, and reflecting on our beliefs to choose actions (Morgan, 2014).

The second guideline relates to the unit of analysis. The pragmatist's focus is always on the individual, as opposed to organisation or societal perspective, while at the same time acknowledging that the individual's experience and actions are always shaped by the situation and surroundings in which they find themselves along with the interactions they have with others (Simpson, 2009).

The third guideline from pragmatism relates to the importance of what is practical. With perhaps the clearest link to strategy as practice again this encourages the research to focus on the gathering of data from people in practice in real world settings, as in the "practice turn" (Whittington, 2006), and also causes us to be aware of the practical implications and relevance any findings (Powell, 2002).

### **3.4 Methodology summary**

A foundation of pragmatic philosophy underpins this study, with dual process and creative action theories providing structure. A rationale has been outlined for the longitudinal multi-case study approach. The research design has also been described, which makes use of causal cognitive maps as a means of capturing how the seven participating hi-tech strategists perspective was changing over time, using the change to explore deeper if this was as the result of some intuition. From there the intuition type was explored along with the underlying drivers behind it.

As highlighted by Johnson et al. (2007), the Strategy as Practice perspective encourages creativity and methodological innovation. This study has answered this call and through the novel combination of established techniques, built upon a solid philosophical and theoretical framework, has created a rich set of data necessary for examining in detail the nuances of entrepreneurial intuition in a strategic context.

## 4 Analysis and Synthesis

*“Creativity requires something more than the processing of existing information. It requires human thought, spontaneous intuition and a lot of courage.”*

– Akiro Morita (Sony) (1991, p191)

In this chapter the analytic methodology is discussed followed by within case analysis and rich description of each case culminating in the themes from each case. The emergent themes are compared across cases for discrepancies and commonalities. Finally, the higher level concepts that have emerged from the data are discussed and synthesised with the theoretical frameworks presented previously. This has allowed a new model for the process of strategic opportunity navigation, referred to as intimation spirals, to be proposed which extends Hodgkinson and Healey’s (2011) static typology of strategic cognition.

### 4.1 Analytic methodology

The data collected from the research design falls into three categories, each requiring a specific analysis method and ultimately synthesis into a common theory. First there are the recorded conversations of all the sessions with the participants. These recordings were transcribed word for word by the researcher and were then coded using a largely process based coding scheme, based on gerunds (Saldana, 2011). Gerunds are a verb form that also functions as a noun, typically ending in –ing, such as listening, exploring, investigating. This was selected as the primary coding method because they signify action and as previously described pragmatic action is a foundation for this study. Some “in vivo” codes, i.e. direct verbatim quotes from the participants, were also used to capture themes in the participants’

own words. These can be identified by the quotation marks surrounding them. Nvivo software was utilised to organise the codes and text. 26 initial codes were created from the 42 source interviews and resulted in 1,196 individual references. After the initial coding several subsequent rounds of pattern coding were conducted in order to reduce the data and allow the deeper concepts to emerge (Miles & Huberman, 1994).

The second data set generated from the research design are the causal maps themselves. As a triangulation tool the maps were examined for number of nodes and their dynamic change during the course of the study. The maps form the basis of tracking the changing focus of the participants over the study and also provided the main context for the interview sessions and guided the conversations.

The third set of data came from the output of the repertory card sorts. As described earlier, the elements for the card sorts had been selected based on a tentative categorisation framework by Sinclair (2011), that provided guidelines for three different types of intuition, namely; intuitive expertise, intuitive creation and intuitive foresight. The participants card sort responses were analysed using Excel to calculate the simple correlation between their responses and any of the three types of intuition listed in Sinclair's framework. The simple correlation is sufficient for this purpose because the data has a linear distribution and limited range of one to five (Salkind, 2010). The Pearson's co-efficient, or r-value, is reported and discussed specifically when the correlation is 0.5 or greater. Again note this is used as a triangulation tool for the main analysis and themes emerging from the conversations. A limitation of this aspect of the research design was due to the correlation calculation taking place after the session, i.e. not in real time. In some cases it would have been preferable to

know that there was a high correlation and therefore to continue the conversation to dig deeper at that time.

All of the above data was manipulated and examined, with tables, matrices and flowcharts, in order to explore the relationships and compare with the theoretical frameworks described previously (Yin, 2009). Systematic combining of the data and iterative data reduction allowed for a theory of dual process opportunity navigation to be developed from the themes present in the data (Dubois & Gadde, 2002). This analysis and synthesis was carried out iteratively in line with the abductive method and early provisional findings were presented back to the participants in order to gather feedback, test the emerging theories but also to keep participants informed and engaged, as is desirable particularly with a longitudinal study, but also to ensure robust theory development (Eisenhardt, 1989a). The participant feedback was only undertaken at the end of sessions in order to reduce any bias in the session. Throughout this process an analytic memo of the researcher's thoughts, concerns, hunches and interpretation was maintained in order to track progress and encourage development of the emergent theories (Saldana, 2011).

## **4.2 Within case analysis**

For each case a detailed description of the participant, their situation and the nature of the opportunity is outlined, followed by an overview of the focus of each session, which is also shown in a time ordered matrix capturing the temporal change in causal maps (Miles & Huberman, 1994). Their REI dual process questionnaire results (note these have a possible range from +40 to -40 for each scale), final causal map and results from the repertory grid

card sort process are presented and discussed. Following this the analysis of the recorded conversations and subsequent coding process and emergent themes are presented. The cases are described here in chronological order by the date of the first session.

#### **4.2.1 Case 1: Mr B**

Mr B is the CEO of an electronics manufacturing company with a niche business-to-business product offering and a global market. The company has a network of distributors in over 50 countries and also has direct relationships and sales to a small number of large multinational companies. Mr B has been the CEO for around 10 years and was sales and marketing manager prior to that. He has been with the company over 20 years. Mr B is heavily involved in customer development for larger customers along with meeting and assessing new potential partners. When we first met, the company was seeking new market niches where their existing products may be able to satisfy a need. More specifically they were looking for niches where they could offer more than just the hardware, but offer a complete solution. In the REI questionnaire, Mr B scored +23 in rationality (i.e. very high in analytic or system two processes), and +9 in experientiality (i.e. positive in intuition or system one processes).

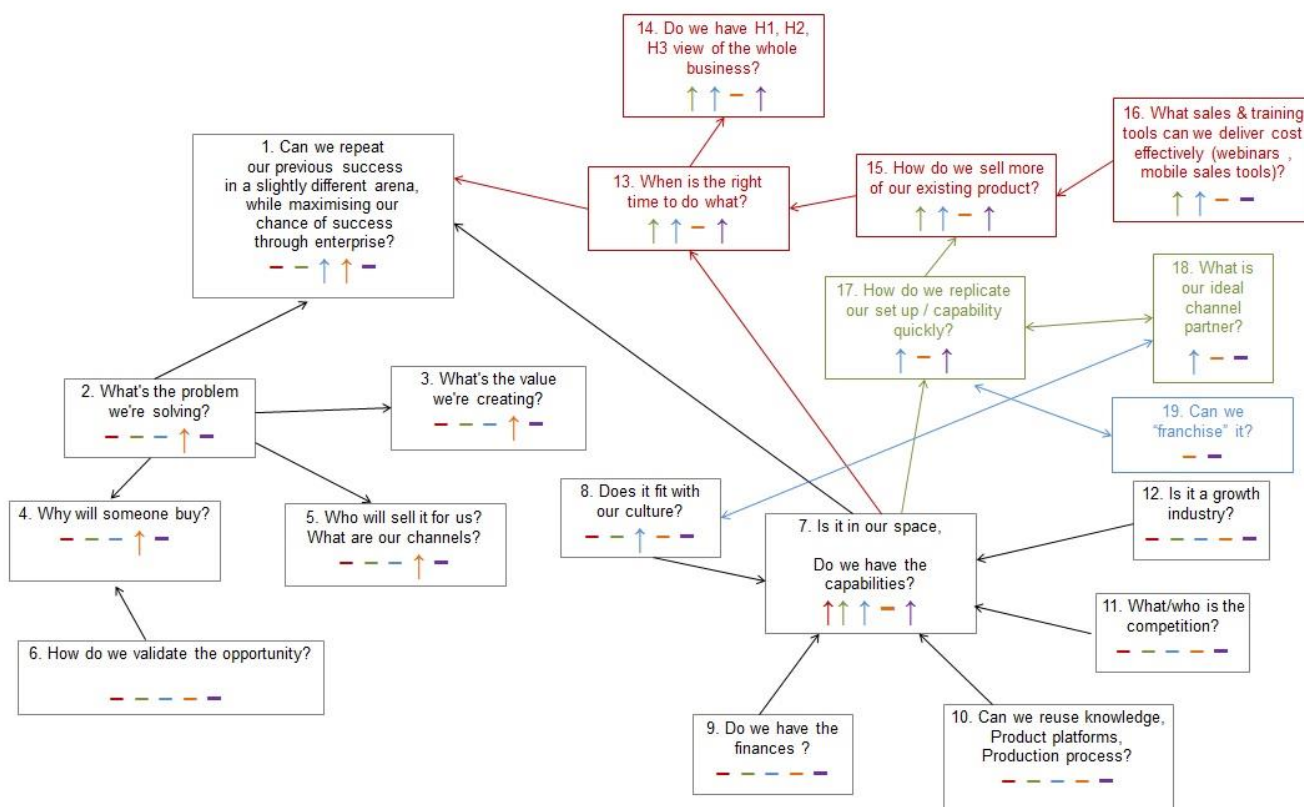
Six sessions were carried out with Mr B in total over 26 months. During the first session following a description of the research project and the REI questionnaire, Mr B began describing the significant strategic questions he had at the time. He described in some detail how the company had grown in the past through deeply understanding the real need behind the obvious technical solution that their hardware actually solves. They had previously had to engage in a lot of education direct to the market and eventually distribution networks superseded this. They also had some new products that are more flexible in how they can be

controlled and so he was looking to try to replicate that model of success in a new area. He also described in some detail what he refers to as the “convergent space”. This is where the core competencies that he believes the company possess and the market needs converge. He described how this convergent space is not immediately obvious and there is a large element of intuition about this area, but that it is based on their experience:

*“yes so what we talk about is this convergent space at the moment is an idea or an intuition or a gut feel or whatever you want to talk about, based on real experience.”*

As can be seen in the causal map questions and structure shown below in Figure 4-1, the questions Mr B was concerned with at that time, shown in black on the map, were primarily questions relating to how they would evaluate the opportunity in this area, if it arose. E.g., would it be a good fit for the organisational culture and knowledge, was there a sales/distribution channel, what were the financial costs/benefits, understanding what the core problem was, the associated value created and how to validate the opportunity?





**Figure 4-1. Final causal map for Mr B, showing change over time.**

The second session with Mr B revealed a significant change of focus during the seven months that had passed since the first session. This was longer between sessions than originally designed but had been difficult to get time due to Mr B's travel schedule. The changes to the causal map are shown in red in Figure 4-1. The business had been through a slow growth period and there was a change in focus away from the "convergent space" and back to the core business as exemplified by the new questions, such as how to sell more of existing products, how to get good strategic visibility of the existing business and provide more sales and training tools. Having said that the convergent space was not forgotten, and the questions there were all still felt to be relevant, but the key issue was Mr B's feeling that the timing was not quite right, and so none of the previous questions had advanced. Mr B's described his feelings about the convergent space and the decision to not pursue it further at this time:

*“I think the intuition that there’s a space in there was correct, and then the intuition can we sell more of what we’ve got now was also a little bit ahead of the facts and data, and I’m feeling really empowered now by the level of visibility we’ve got about what people are doing in the business so we can go back and take it here or we could take it there”*

The feeling about the timing not being right was chosen as the focus for the repertory grid card sort. Of note here two of the six rounds of card sorts had strong correlation with “intuitive foresight” (Sinclair, 2011). The round three sort had a low negative correlation with expert intuition (-0.31), low correlation to creative intuition (0.22), but high correlation to intuitive foresight (0.75). Similarly round four had a low negative correlation with expert intuition (-0.24), low correlation to creative intuition (0.47), but high correlation to intuitive foresight (0.85). When discussing the information sources on the cards in the context of not pursuing the convergent space, Mr B said:

*“We’re getting greater visibility on how long projects take, what time, what else we are doing... I get quite energised by the convergent space, we get excited by new ideas, but we have to be a bit measured.”*

He mentioned on several occasions in this session the notion of “greater visibility” internally and externally, allowing him to better predict the future. In this period he had placed a greater emphasis on their long term planning and described mapping H1, H2 and H3 horizons for the various projects, as described by Bahgai, Coley, and White (1999). This would appear to link to an element of foresight, which confirms the correlation.

Five months further had passed before the third session with Mr B was conducted. The changes to the causal map from this session are shown in green in Figure 4-1. During that time some potential new channel partnerships had emerged, in Germany, that offered new opportunities for the company and these were being explored. How to sell more of their

existing products was still a focus but related to this were some new questions about how to replicate their sales capability in new locations and so actually trying to define what their ideal partner looked like. The convergent space was still relevant but was not actively being pursued. Again the issue of the timing being right was raised, and he commented:

*“Thinking about where we were, taking on these activities, the German thing, was really because we felt we were ready whilst it wasn’t quite there it was a bit of an intuitive act I suppose.”*

The decision to pursue the new channel partner was chosen as the key context for the repertory grid card sort. In this case there was a weak correlation (0.51) to expert intuition in one round of the card sort. In discussing the information types and this particular decision Mr B mentioned that there was certainly an element of his prior experiences being brought to bear, as he said:

*“It’s like unpacking some stuff you’ve had before and said OK that’s what they were and challenged it with new data and new information and stitching it all back together again, acknowledging what your prejudices or mis-information were, marrying it with some new stuff but OK learnt something but bringing it back to that field”*

Prior experience is a cornerstone of expert intuition and so explains the correlation in this instance, albeit not a strong one.

The fourth session with Mr B was conducted five months later and the changes to the causal map are shown in blue in Figure 4-1. The relationship with their new channel partner had moved on and they had actually developed a joint venture with them. The desire to move quickly was apparent and many of the questions were being advanced in terms of confidence. A new question was added about the need to move quickly and how could the company

almost franchise their channel partners. In discussion about how the most recent channel partner relationship had advanced, it was apparent that a large part of the process was centred around the personal connection between the key people. As Mr B describes:

*“They were telling all the right stories and you spend time with them and then you just find that you have a similar view on life...what’s happened to other people and even our own journey, and when all of those things lined up we felt really quite comfortable. Interesting when I first met with one of them the others were overseas and they spoke that night and J said his partner A’s first question was, not what’s the business like, will they accept our proposition or anything like that, it was what’s he like?”* (Names removed.)

The decision to work with the new partner based on the personal aspects was the context for the repertory grid card sort. However, there were no significant correlations between the card sort data and Sinclair’s framework.

Five months passed before the fifth session with Mr B was carried out. The changes to the causal map are shown in orange in Figure 4-1. During this session it was apparent that the new partnerships were going well but most interestingly, things in the new opportunity “convergent space” had started to emerge. One of their sales engineers had very recently identified a new application that by controlling their hardware in a slightly different way would yield significant benefits in a particular application. Mr B describes the idea in this space as coming about from earlier seeds that were sown:

*“That stuff runs in parallel so hopefully we are putting ourselves in a place, I expect quite a significant idea to pop out. We’ve got one which is a seed of one now, which is really quite good, just to pop out and then somebody will walk in and say why don’t we do this and everyone will go, that’s right! And it will be big and it will be like it appeared from nowhere but actually it’s been seeded.”*

This new opportunity in the convergent space was the context for the repertory grid card sort. Again however there were no significant correlation between the card sort data and Sinclair's framework.

The sixth and final session with Mr B was carried out four months later, with the changes to the causal map shown in purple in Figure 4-1. The product changes for the convergent space opportunity were being developed and market investigation had been continuing. He felt that the timing, both externally in the market, and internally in the business, was right to take the new product to the market as he described:

*"We are in market, we've got a product about to be in market which will then let us deploy it so all of those bits and pieces are coming together and we know it's a good product and we know we're credible and we know we've got a valuable idea, should be quite exciting."*

The timing being right for getting the new product to market was the focus for the repertory grid card sort. In this instance, there was a weak correlation (0.6) to intuitive foresight in one of the card sort rounds. When discussing this Mr B said:

*"What we've seen is not only a product but it's a business need, it's a timing in the market there's lots of reasons why I'm confident this can change"*

At this session the question of right timing was raised on several occasions, which implies a vision of the future state that would explain the correlation to intuitive foresight.

Mr B	25Jul13	25Feb14	10Jul14	3Dec14	19May15	23Sep15
<i>New or changed questions</i>	12	4	2	1	0	0
<i>Answered questions</i>	-	0	0	0	0	0
<i>Increased confidence</i>	-	1	5	9	5	5
<i>Decreased confidence</i>	-	0	0	0	0	0
<i>No change</i>	-	11	11	9	14	14
<i>Focus with intuitive component to the changing perspective</i>	Convergent space opportunity	Timing not right to pursue convergent space opportunity	Pursuing new channel partner	New channel partner personal aspects	Convergent space new opportunity	Timing right for new US channel

**Table 4-1. Time ordered table showing map changes and focus of sessions with Mr B.**

The time ordered Table 4-1 (Miles & Huberman, 1994) above, provides an overview of the focus of each session with Mr B and the changes to the causal map over time. Analysis of the coded transcripts of all sessions with Mr B, reveal that the three most frequent first level codes were; partnering, feeling for an opportunity and evaluating timing.

As a first level interpretation of the data, there were three key recurrent themes from the sessions with Mr B. Firstly the significance of his judgment on timing of when to put more focus into a particular opportunity, was a highly intuitive decision, that was based on intuitive foresight. He had several strategic options at play and having seeded one area he would not necessarily focus on that one area until it was complete. He remained flexible as to which opportunity area he was focused on at any one time and the decision about when to advance in one area or the other was highly intuitive. The question of timing was also not just whether the market conditions were right, but these were matched with the internal capability to deliver, at that time. The second theme was how often the decisions about strategic partnerships were if not wholly determined certainly heavily influenced by the personal

relationship between Mr B and the other people involved. His impressions about the people were based on his feelings toward them and therefore grounded in system one, i.e. subconscious processes. The third theme related to his actions in the new opportunity space where he “seeded” the idea with the team and had a path in mind for how that would be evaluated if it came about. He took this approach because he had a feeling that the opportunity would emerge in that area and having put some of the structure in place, was happy for others to explore it more fully.

#### **4.2.2 Case 2: Mr D**

Mr D is the co-founder of a manufacturing company with a hardware business-to-consumer product in the health industry. He has been with the company over 20 years and was previously the CEO, but now acts as sales director. The company has a global market and distributors or resellers in around 20 countries. Mr D is directly involved with new projects in the market and expanding the company’s international network. When we first met Mr D had discovered a new type of technology that had some potential application in the company’s core market, but it was uncertain as to how this could be deployed or the actual benefit of it. In the REI questionnaire, Mr D scored +17 in rationality, and +6 in experientiality.

Seven sessions were carried out with Mr D over a 27 month period. During the first session, following the explanation of the research process and the REI questionnaire, Mr D described a new technology that was of interest and how it could potentially add value to their customers, although exactly how was unknown at the time. As can be seen in black in the causal map below, Figure 4-2, he had a series of questions relating to the value

proposition, what the actual product definition might be, and how to validate this. While clearly he felt there was an opportunity for the new technology Mr D. also had some concern, based on an intuition that if they were not careful this could actually become a distraction, as he describes:

*“...this could so easily become a distraction to our core business and then dilute what we are actually doing in the rest of our business. Because we are seeing it as a valuable part over here, we need to be careful, it’s a plus and a minus. So at the moment our gut feel is that we should stick to our knitting, and that the real value for us will be by keeping it tightly focussed on what we can deliver value in our distribution system, our supply chain...”*

There were also a group of questions relating to the people involved, and also issues relating to the intellectual property control, and the investment levels required to commercialise.





*empathy of what their world represents. More and more that's what's driving to be honest that's what's driving our decision making"*

The other area of interest that had changed significantly was the issue of control of the intellectual property. Mr D had been working with the originators of the technology to clarify this and they had taken a harder stance than he had anticipated. So while the position became clearer and some of the uncertainty removed, it was not necessarily to his advantage, as he said:

*"...because of the work we've done I am more confident, it doesn't necessarily mean, in some ways you can be more confident about something and because of that decide that you don't want to do it"*

The feeling of increased confidence in uncovering the real value proposition as a result of talking to customers was chosen as the context for the repertory grid card sort. In one round of the card sort there was a mild correlation (0.62) with intuitive foresight (Sinclair, 2011). In discussing the potential with customers Mr D had spent time explaining what it could help them do in the future and this future view would explain the correlation to foresight. He said:

*"Value is coming more and more from what the customer needs, what the hurt is, where's the pain and what can we do to help on that."*

The third session with Mr D took place five months later and the changes to the causal map are shown in green in Figure 4-2. He was continuing to investigate the application of the technology into their existing market. As a result he was increasingly confident about the potential value proposition. What had happened however, was the relationship with the

original people involved in developing the technology had become a little strained, as he comments:

*“What we probably hadn’t put enough emphasis on, the quality of the people, the quality of the commercial side of it. There seems there was a naivety that we had underestimated.”*

Also at this time he had uncovered another group at a different university that were developing some very similar technology and so he had started to build a relationship with them, and was feeling good about working with them being less reliant on the initial partners. The feeling that he had about working with the new partners was selected as the basis of the repertory grid card sort. In two rounds of the card sort there was one with a mild correlation (0.54) and one with a slightly stronger correlation (0.69) with intuitive foresight. When discussing the card sorts in this context of dealing with the partners he said:

*“A lot of this is to do with behaviour, interpreting behaviours of these groups ..., so it’s more to do with experience and intuition but there is some very deliberate analysis going on as to OK how do we compare that with that, where are their relative strengths and weaknesses.”*

He is acknowledging the role of intuition in this process, while also needing to have an analytical balance. In this case he is referring to the partners in terms of how he can see them working together in the future, or not, and so this provides the link to foresight.

The fourth session with Mr D took place after another three months had passed. The changes to the causal map are shown in blue in Figure 4-2 At this time he had backed away from a close relationship with either of the technology partners and due to the customer investigation work he had done he was more secure in the knowledge that the real value was

in the customer front end of the application. In positioning it this way they were actually not reliant on either of the core technology providers and so could effectively be agnostic with regards where that came from. He described it as:

*“...intuitively I am feeling more confident about almost doing our own thing rather than doing it with the others, last time I was probably concerned it wasn't working very well the relationship side of it, and that worried me therefore does this mean that business opportunity we are going to miss out. Now I feel, well actually as that relationship has been pushed aside it's been a good thing and we just get on and back ourselves, and we believe there is an opportunity therefore we will invest and get on with it. So intuitively I feel we're backing ourselves, as we have become more comfortable about learning more about the technology”*

The feeling that they were more in control of their own destiny and less dependent on the technology partners was chosen as the key context for the repertory grid card sort. In this case there was a mild correlation (0.53) to creative intuition in one round of the card sorts. Significantly as this session was more focussed on their more immediate action, rather than predicting the future, the correlation, albeit slight, is with Sinclair's creative intuition, rather than intuitive foresight as had previously been the case. The more direct problem solving focus, more characteristic of creative intuition, is apparent in his comments during the card sort:

*“There's also a feeling that there's a part of this which is, as there always is with customers is where's the pain point? And if we can identify what the problem is then there's opportunity for us to provide a solution, so that's part of the focus for me at the moment.”*

The fifth session with Mr D took place four months later with the changes to the causal map shown in orange in Figure 4-2. He was increasingly confident in how the

opportunity was progressing. He was now able to articulate actually what they would be able to deliver for customers and as the result of the process of investigation he had been able to reframe the actual proposition. He described it as:

*“It’s probably also that we’ve redefined the proposition. The reason we have more confidence in the commercialisation is actually we have changed the definition of the proposition really... The actual proposition now is not the widget. It’s how you deliver the answers. So that to me is the biggest change so that in turn simplifies what we are trying to do and our investment is going to be in the software product that is delivering the technology, whose ever it is.”*

This confidence in the redefined proposition was selected as the context for the repertory grid card sort. However, in this instance there were no significant correlation between Sinclair’s framework and the card sort data.

Another three months passed before the sixth session with Mr D took place. The changes to the causal map are shown in purple in Figure 4-2. At this time he was focussed on getting into the next phase and was pushing to get prototypes back into the market to test. He described how he had done extensive research and testing as much as he could. He had internal support within the organisation and he was now pushing for the next phase of action. Being confident in the knowledge they had built up and knowing enough to move forward had a large affect driven aspect relating to a strong feeling of confidence in their own ability. Mr D was passionate and almost impatient about wanting to get back to talk to customers again but with something physical to show them. As he stated:

*“Now we’ve moved more strongly into the phase where you’re backing yourself. We’ve done the validation, doesn’t mean we’ve got it dead right, I’m sure there will be some surprises but we’re saying we know enough now internally in order to get on with it.”*

This was a particularly interesting development as the previous phases of increasing confidence as the opportunity emerged and had essentially been increasingly data driven, but here the desire for action was largely emotive, and therefore based in system one feelings. This context of “backing yourself” was selected as the context for the repertory grid card sort. The card sort data from two rounds showed one with a strong correlation to creative intuition (0.78), and one mild correlation (0.66), also to creative intuition. This emphasis on creative action explains the linkage in this case. When explaining his card sort selections here Mr D said:

*“That’s the logic behind it but we’ve moved on and yes that’s there but now we’re at a stage where we are going, right don’t need to learn any more at the moment. Let’s get to market.”*

The seventh and final session with Mr D took place five months later. The changes to the causal map are shown in grey in Figure 4-2. By this time the company had engaged with a government agency who can help fund research and development into new technology. He described the board as being supportive of investment into the new development but that having the government agency involvement while it provides the board with some additional reassurance, will probably slow the progress and require more documentation. He described the personal implications of this:

*“My own personal feeling at the moment is that it’s time for me to hand it off. That I don’t fit particularly, I probably do from an advisory role now, but there is a real risk that yeah just a gut feel that as it gets into a more regimented phase that I need to recognize that I’m not good at that and therefore we should get other people involved in it.”*

His own self-awareness and intuition about his role as the project moved into another phase was selected as the context for the repertory grid card sort. However, in this instance there were no significant correlations between the card sort data and Sinclair’s framework.

Mr D	21Aug13	4Mar14	5Aug14	26Nov14	11Mar15	17Jun15	27Nov15
<i>New or changed questions</i>	17	0	2	0	0	0	0
<i>Answered questions</i>	-	0	0	0	1	0	0
<i>Increased confidence</i>	-	10	6	10	12	8	12
<i>Decreased confidence</i>	-	2	0	1	0	0	1
<i>No change</i>	-	5	11	8	6	10	5
<i>Focus with intuitive component to the changing perspective</i>	Feeling of potential application for the new technology	Investigating the real value proposition	Feeling for working with the new partners	Feeling they are more in control of their own destiny	Confidence in the reframed proposition	“Backing yourself” and moving to prototype	Self awareness about fit for new phase

**Table 4-2. Time ordered table showing map changes and focus of sessions with Mr D.**

The time ordered Table 4-2 (Miles & Huberman, 1994) above, provides an overview of the focus of each session with Mr D and the changes to the causal map over time. Analysis of the coded transcripts of all sessions with Mr D reveal that the three most frequent first level codes were; acting, feeling for an opportunity and understanding others perspective.

As a first level interpretation of the data, there were three key recurrent themes from the sessions with Mr D. The first of these was the significance of intuitive assessments of people, and including Mr D’s self-awareness about his own role. This had been an area of focus and of significant change during the course of the study. One of Mr D’s initial questions was, “What is the quality of the people behind the offering?” Judging the quality of people is not an easily analysed question and has a large intuitive component. The second

theme was the fact that Mr D's focus went through phases of increasing data collection and analysis as he was navigating the opportunity but then also coming back to a feelings based intuition, as characterised by his confidence and impatience to move forward to prototyping. The third theme was the desire for action and confidence in his own and his team's ability, once the opportunity became somewhat clearer. He mentioned on several occasions, particularly in sessions four and six as described above, how they would "back themselves" to get it done. This focus on action had links to creative intuition.

### **4.2.3 Case 3: Mr S**

Mr S is the CEO of a start-up company that is commercialising some intellectual property that was spun out of the local university. It is targeting a very specific niche within the automotive industry for its business-to-business hardware product. Although we have called the company a start-up due the fact it is pre-revenue, it was four years old when the sessions started, and Mr S has been the CEO since it was founded. Previously he had over 10 years of experience as a venture capitalist and was involved with a number of start-up companies that have gone on to be successful. When we first met the company was trying to locate strategic partners that would help them get to market. In the REI questionnaire, Mr S scored +33 in rationality, and +35 in experientiality.

Seven sessions were carried out with Mr S in a period spanning just over 27 months. During the first session, after describing the research and completing the REI questionnaire, Mr S outlined the opportunity space they were dealing with and the questions he had in his mind. As shown below in Figure 4-3, in black, there were a group of questions relating to macro factors to do with to oil price and regulatory influences that would have a bearing on



the market. There were also some questions about other competing technologies both existing and unknown. Another group of questions were relating to who they would partner with for both the manufacturing and capital requirements. And finally some questions relating to their own technical product development. When describing how he liked to make big decisions such as when he joined and co-founded the company, he said:

*“I would work like a dog on doing due diligence, so I would ask all the questions write up a big thick report, but I wouldn’t you know I’d leave the conclusion alone. And once I’d finished that process I wouldn’t think about it for a day or two. Then I would set some time aside when I would literally put my feet up on the desk and just mull it over, would I be annoyed if we did this or you know if we passed on it and it was successful, do I really want to be there through the next few years? And I’d just let a conclusion kind of emerge which would be do I want to be there or not?”*

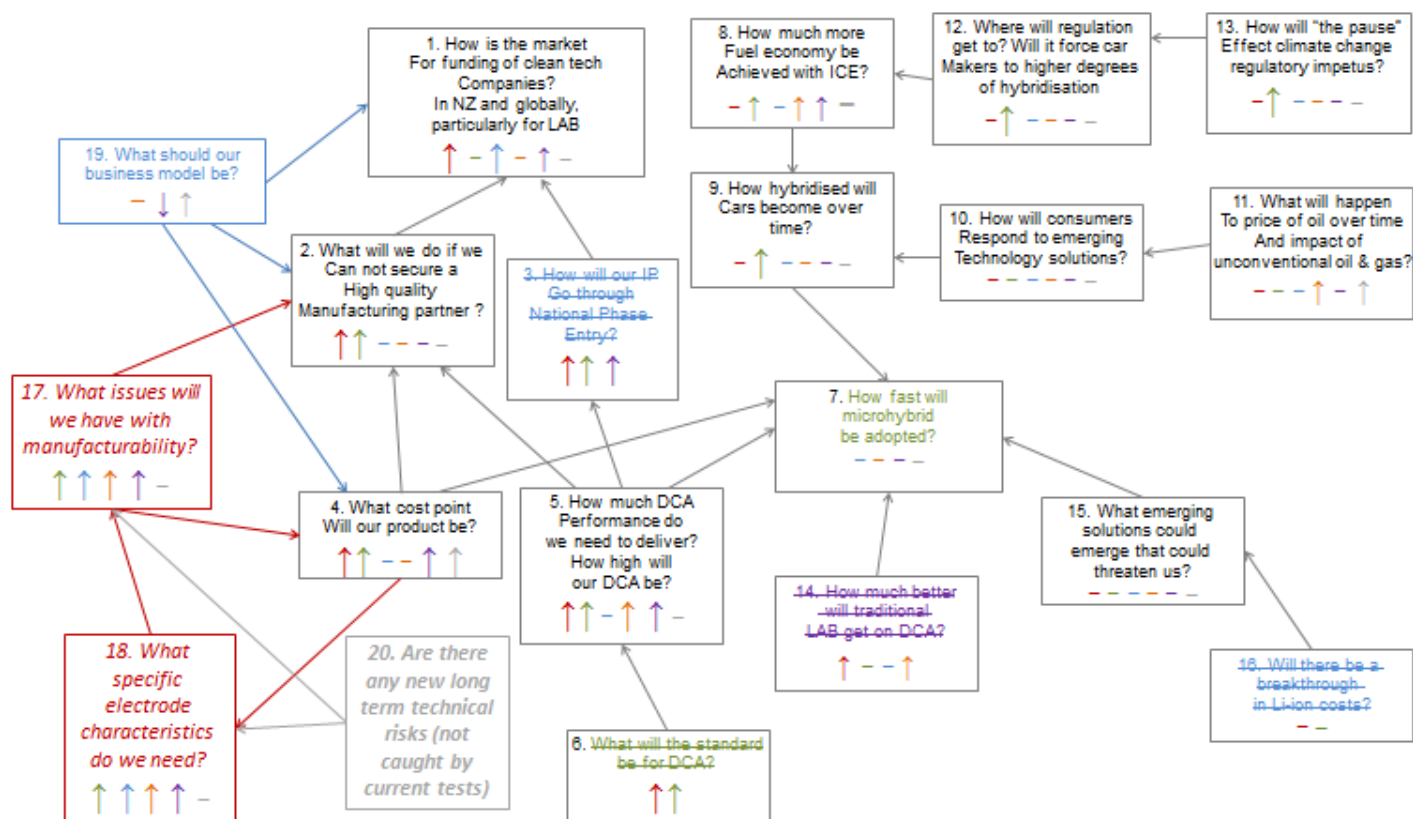


Figure 4-3. Final causal map for Mr S, showing change over time.

Session two with Mr S took place six months later and the changes to the causal map are shown in red in Figure 4-3. Again scheduling the sessions in between his travel arrangements had caused some delay. During that time he felt there had been no major change in the macro factors and the company had been working hard on resolving some of the unknowns with the technology. The resulting data was giving him more confidence and as a result he was starting to think about the next level of questions that they would need to look at, such as specific physical characteristics and manufacturability. One particular area he had been focussed on which had significant impact on their overall opportunity was what their final cost point would be. He was not yet able to have hard data on this but had been

gathering information on the processes and materials that would likely make up the final product and influence costs, so had a feeling of where it would finish. He described this as:

*“A lot of the cost I think it's in that process and so is now down to the post processing and I just, I can see capex turning up but I just can't see cost turning up, I mean we've got to get there but my gut tells me if at scale there won't be a big difference”*

The feeling about the cost point was selected as the context for the repertory grid card sort. However, in this instance there were no significant correlation between Sinclair's framework and the card sort data.

The third session with Mr S took place five months later, with changes to the causal map shown in green in Figure 4-3. At that time he was more confident in several of the macro factors due to the changing nature of oil price and continued regulatory pressure on vehicle emissions that was supporting their cause. His thinking on this had progressed to the point where he was confident that the central question was not whether the type of vehicles they were most interested in, i.e. micro-hybrid, were the long term solution, but a question of when and how quickly they would be adopted. He was more confident about most of the technical questions as the engineering teams continued to refine the product and some of the standards were starting to be defined and so were no longer questions. However, one area he remained cautious about was if any other new technology would come along and disrupt their offering. He was actually no more or less confident in the answer to this, but because of the risk associated had the feeling that this was still an area of focus. He described it as:

*“I guess this is analytics vs intuition right, the analytical part of me says they've hit a wall. The intuition part of me says, you know from what's published we've not got a problem. From what is, you know two of the three companies we are working with have got the best*

*data in the world. And I get the feeling if the data wasn't differentiated from what they are getting from their labs then they wouldn't be talking to us. Um but, but, it's a risk."*

This context of the feeling about the risk of any new technology entering their space was the context for the repertory grid card sort. In one round of the card sort there was a moderately strong correlation (0.77) to intuitive foresight. He described this further during the card sort as:

*"We do want to get our heads around that other stuff but the reality is we can't because this is the stuff that's not in the market it's the stuff that's in other people's labs."*

Any emerging technology is not something that Mr S could actually do anything about, or even research, but it was the future implications of it that were of concern and imply the link to an element of foresight.

The fourth session with Mr S took place four months later. The changes to the causal map are shown in blue in Figure 4-3. At this time there were no major changes in his thinking regarding the macro factors, but some of the details had been resolved, particularly to do with intellectual property. Most significantly was the addition of a new question to do with what the actual business model for the business might be. Mr S was excited and passionate about the potential to capture more of the value chain than they had originally considered, and part of this meant there was a rational reason for having a significant footprint in New Zealand. This potential had only recently emerged and had yet to be fully explored or presented to the board. He described this as:

*"Because when I start looking through this I can sort of see in my mind's eye when I was doing it but at the end of the day it is fitting in to an agenda right, and my agenda is to get something done here. And so as much as anything else this provided the evidence and the*

*means to do what I want to do, and so this kind of becomes the underpinning piece to it all, and this is the rationalisation phase to make it happen.”*

This feeling for the potential new business model was the context for the repertory grid card sort. In this instance there were no significant correlation between Sinclair’s framework and the card sort data.

The fifth session with Mr S took place after another five months had passed. The changes to the causal map are shown in orange in Figure 4-3. He had started investigating the business model question that was raised at the last session but had not progressed very far on it. His focus had largely been on manufacturability issues because they were getting close to securing some key partnerships. His confidence was a little ahead of the actual data, as he said:

*“If you went and asked guys outside if we are there yet on manufacturability they would say 50/50 and so on for me I’m all but certain just can’t see why we can’t get this to work from here... It’s because industry guys looked at it and said we can work with it and that’s important, but actually I think, I’m just doing my board papers and I’d re-written my board papers that I’m sure we are going to get there from here and that was in December. And we met the guys in February so the reality is that is more validation of that.”*

Again he spoke about incubating the ideas and also talked about understanding the perceptions of others and allowing them to have time to incubate. In relation to talking to investors he mentioned:

*“The reason I get out and do capital raising early is that I want other people to allow them to have the time to mull over things and cogitate before they jump.”*

This increased confidence in the manufacturability question was the context for the repertory grid card sort. One round of the card sort data showed a slight correlation (0.52) in intuitive foresight. Mr S's increasing confidence in their future path, and in particular the new partnerships would define how they would work in the future. This future view may explain the link to intuitive foresight. He elaborated on this:

*"The reason I am more confident now is a number of factors, one is that we are getting good stuff going on downstairs. Another is that we've managed to hook a battery equipment maker and I know that doesn't sound like much but that is non trivial."*

After another four months the sixth session with Mr S took place and the changes to the causal map are shown in purple in Figure 4-3. At that time his confidence was still increasing in the technical questions such as manufacturability. But most significantly he was actually less confident about the question of the long term business model. Some of the original shareholders were starting to express a desire to get out and so this caused him to re-evaluate the strategic options to allow for an exit option. He described his thinking on this as:

*"But as I get into the detail I get less sense of which way to go now. When I started off I had a pretty clear view, but honestly now I am into the detail it's that I can see problems and opportunities with all of them. And I don't feel yet that I can balance these things up."*

This feeling of uncertainty and re-pitching of the strategic plan was the context for the repertory grid card sort. One round of the card sort data had a moderate correlation (0.60) to creative intuition. As a result of having to re-evaluate their strategic options, Mr S was having to create a new plan, as he described:

*"Two different phases of it I guess, there's one thing in generating information and analysis and then there's the second part which is to synthesize that into a plan to pull off"*

This synthesizing of a new plan requires creativity and helps explain the link to creative intuition.

The seventh and final session with Mr S took place four months later with changes to the causal map shown in grey in Figure 4-3. The major focus of this session was the strategic re-alignment that Mr S was about to present to his board. This incorporated some of the new business model elements that had been in his thinking. In his creating the new plan he had navigated the uncertainty and used intuition and analysis at different times along the way. As he commented:

*“We had so much uncertainty around the place and so in the realm of high uncertainty you can't logic your way out. You can be unpicked by any of these things, but as the uncertainty resolves you are left with a pretty clear picture of what's going on. Then actually deliberate analysis is pretty useful. Or can deliver useful results.”*

The new strategy was selected as the context for the repertory card sort. In this instance there was one round of card sort data with a weak correlation (0.55) to creative intuition. In discussing the card sorts he said:

*“All this is a means to an end, the end is to create a business and it's a particular type of business I'm looking to pull together so as you find information it helps build the case towards an objective. I know myself it's not entirely rational. There are other things I could do to be honest with all these problems, is the reality but I choose to, there is enough logic that embeds this, you know it's still reasonable. You know it's still sound rational thinking but there are probably other sound rational options that would take us in a totally different direction and I'm not interested in those.”*

The fact of trying to create the business provides some explanation of the link back to creative intuition. Also of interest here is another reference to the phases he went through including validating the plan to support his preferred strategic option.

Mr S	28Aug13	26Feb14	17Jul14	20Nov14	9Mar15	15Jul15	3Dec15
<i>New or changed questions</i>	16	2	1	1	0	0	1
<i>Answered questions</i>	0	0	1	2	0	1	0
<i>Increased confidence</i>	0	8	11	3	6	6	3
<i>Decreased confidence</i>	0	0	0	0	0	1	0
<i>No change</i>	0	8	6	12	10	8	12
<i>Focus with intuitive component to the changing perspective</i>		Where is the cost point getting to?	Is there any emerging tech that could threaten?	What is the business model going to be?	How manufacturable will it be?	How to re-pitch the strategic plan?	Will the board buy in to the new strategy?

**Table 4-3. Time ordered table showing map changes and focus of sessions with Mr S.**

The time ordered Table 4-3 (Miles & Huberman, 1994) above, provides an overview of the focus of each session with Mr S and the changes to the causal map over time. Analysis of the coded transcripts of all sessions with Mr S reveal that the three most frequent first level codes were; feeling for an opportunity, predicting the future and acting.

As a first level interpretation of the data, there were two key recurrent themes from the sessions with Mr S. Firstly was the different phases of balancing intuition and analysis that he utilised at different stages. As the new business model potential was uncovered he had an emotional response and positive feeling for the opportunity and what it could mean. He then went through a phase of exploring the implications and finding out if it was feasible by gathering data and investigating the implications. Then he had a phase of justifying the new position to the board during which he used information to validate his preferred position. And



he also used incubation as a means of letting the subconscious have time to process the information and then how he felt about the opportunity. The second theme was related to other people's perspectives. He was aware that other people also needed time to process the information he was providing and so when trying to gather support, such as from investors or from his own board. He would try and present information to them as early as possible, and let them have time to think about it and incubate the information themselves before making any decisions.

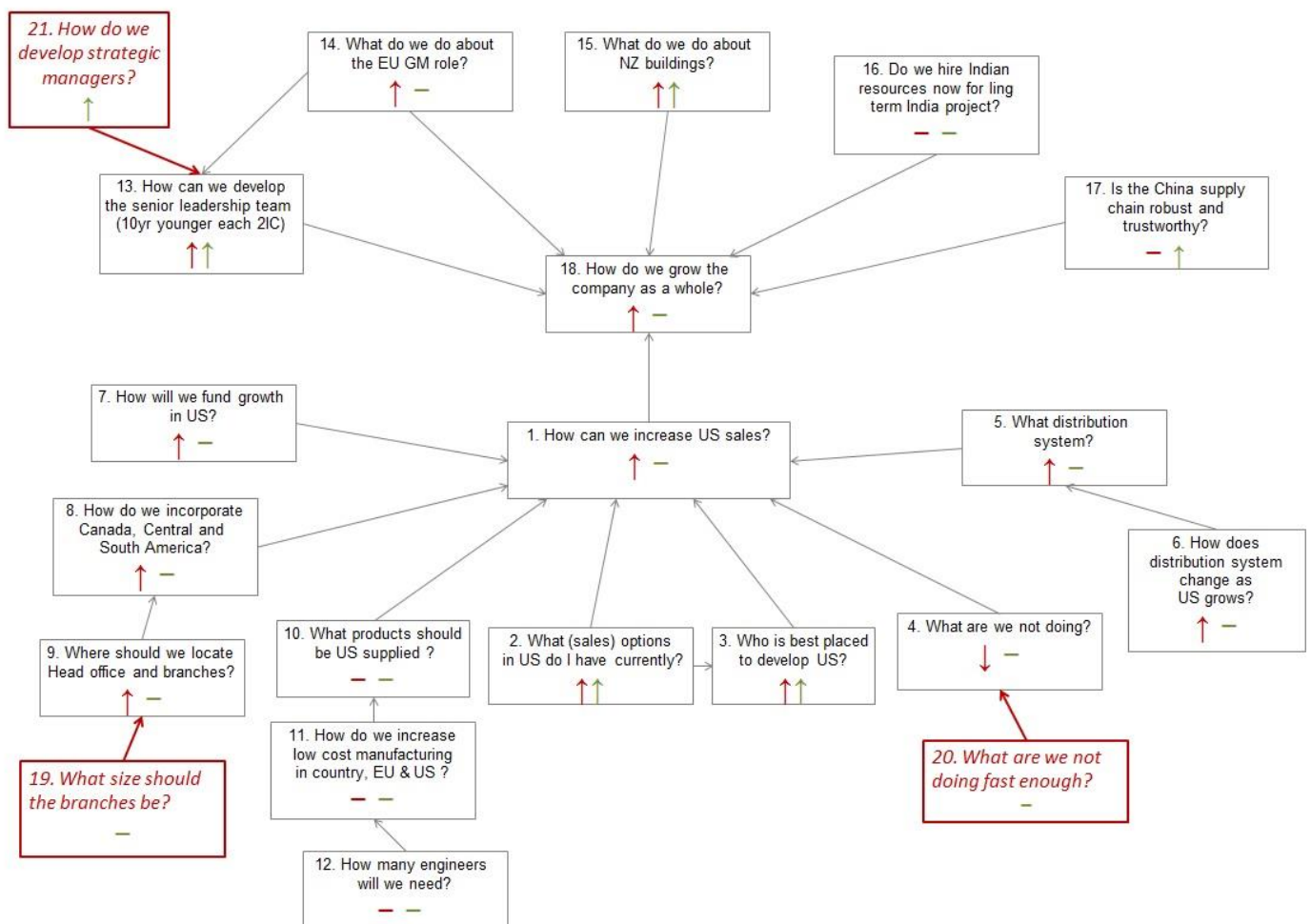
#### **4.2.4 Case 4: Mr C**

Mr C was the CEO of a manufacturing company with a hardware business-to-business product range for the food preparation industry. It has a global market and distributors in around 10 countries. It also has a manufacturing operation in Europe. Mr C had been in the CEO role for two years and had over 20 years of experience as CEO and sales director of an international manufacturing company prior to that. As noted earlier Mr C's situation had changed after three sessions and so he was not able to continue to take part in the study, but this abbreviated case is still included for completeness. When we first met the company was looking to expand its geographic market to a new region. In the REI questionnaire, Mr C scored +37 in rationality, and +23 in experientiality.

During the first session, following the overview and REI questionnaire, Mr C outlined the key questions in his mind relating to the potential opportunity for expansion into the United States market and growing the company as a whole. The questions as a result, shown in Figure 4-4, in black, were divided into U.S. specific issues to do with supply chain, sales and distribution, along with general strategic issues such as developing the people, and issues

relating to New Zealand facilities, India and Chinese supply chain. Regarding the potential in the U.S. market he said:

*“There are no numbers to support anything, yet. This whole American thing is all intuitive. And its progressing based on discussions.”*



**Figure 4-4. Final causal map for Mr C, showing change over time.**

The second session with Mr C took place five months after the initial session and changes to the causal map are shown in red in Figure 4-4. His confidence in the U.S. market potential had increased and was also starting to include South America into his thinking. He

was starting to put together a case to justify investing more into the market development work. He described this as:

*“...and intuitively, because I don’t have the numbers, I know which way I want to go. But what we’re doing now is quantifying the intuition with the numbers because we’ve got to put it to the board.”*

The decision to justify the intuition and seek board support was selected as the context for the repertory grid card sort. In this instance there was one round of card sort data with a moderate correlation (0.71) to expert intuition. When explaining his approach Mr C described:

*“Actually what I want to do is take the holistic view and do it differently but having based it on my familiarity with what’s been done before. So it’s taking learnings and maybe then applying it in a completely different way.”*

This aspect of recognising the patterns of what has been done previously and therefore what should follow, links directly to the traditional view of expert intuition and this explains the correlation.

The third and final session with Mr C took place four months later. Changes to the causal map are shown in green in Figure 4-4. By this time they had appointed a Business Development Manager (BDM) to be based in the market and try to develop the opportunities. Mr C however was not very much more confident in the answer to most of the questions in that area. He described the decision to appoint a BDM as:

*“So it took me six months to convince myself that a BDM was the right way to go, because I wasn’t convinced. And so is that fast enough or not, or is that just making sure that the opportunities are right, or maybe I should have spent more time six months earlier*

*thinking it through. But at that time and stage in the business we didn't need it and you can argue whether we need it or not but it's certainly a way of accelerating. So yes I find it very interesting that if I'm holding off doing something even sort of I suddenly realise I haven't done that for a week or two, then I realise that subconsciously I'm not convinced. And then when I'm convinced it happens quite quickly.*

The decision to appoint the BDM was selected as the context for the repertory grid card sort. However, there were no significant correlations between the card sort data and Sinclair's framework.

Mr C	8Oct13	4Mar14	22Jul14
<i>New or changed questions</i>	18	3	0
<i>Answered questions</i>	-	0	0
<i>Increased confidence</i>	-	12	6
<i>Decreased confidence</i>	-	1	0
<i>No change</i>	-	5	15
<i>Focus with intuitive component to the changing perspective</i>		Seeking board support	Appointment of a BDM

**Table 4-4. Time ordered table showing map changes and focus of sessions with Mr C.**

The time ordered Table 4-4 (Miles & Huberman, 1994) above, provides an overview of the focus of each session with Mr C and the changes to the causal map over time. Analysis of the coded transcripts of all sessions with Mr C reveal that the three most frequent first level codes were; feeling for an opportunity, validating and judging people.

As a first level interpretation of the data, there were two themes that emerged from the few sessions with Mr C. The first was the phases he went through. He started with purely intuitive feeling for the opportunity and this was followed by the need to validate his intuitive feeling for the opportunity with hard data in order to gain the support of the board. The

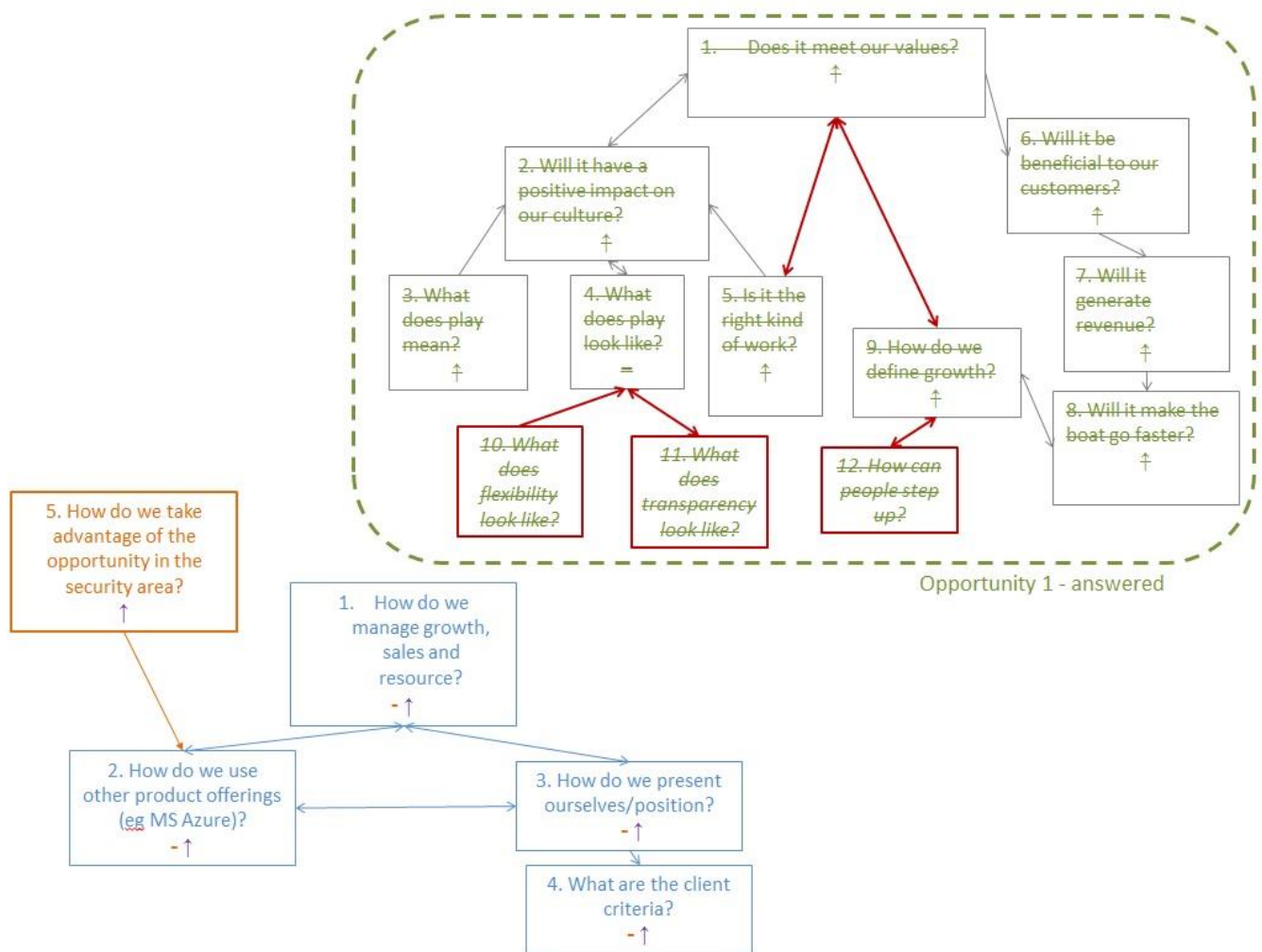
second theme was his flexibility. He had started with only the U.S. as the target but in investigating further he decided that South America also had some opportunity and so included that in his plans.

#### **4.2.5 Case 5: Mr G**

Mr G is the founder and sales director of a website and digital services company providing design and consultancy to business clients. The company has predominantly local clients. Mr G has been in the role for 17 years and was instrumental in the company's success at attracting new clients, which it had continued to do over its history. When we first met the company was looking at internal culture change as a source of new opportunities. It is noted that this is a different orientation to the other cases which were focussed externally. Because it was still centred around the opportunities this would provide, it was still felt to be comparable and relevant. The latter sessions with Mr G did become focussed on the more typical external opportunities. In the REI questionnaire, Mr G scored +32 in rationality, and +7 in experientiality.

Six sessions were carried out with Mr G over a 25 month period. During the first session, following an overview of the research and completing the REI questionnaire, he described a series of questions he had relating to an internal culture theme that was being rolled out in the organisation. The theme was “play”, and so the questions related to the practical implications of “play” in areas such as, how this might impact customers, help generate revenue, along with what does it mean for values and culture. These initial questions can be seen in struck through green in Figure 4-5. He stated:

*“So what we are trying to do now is define what that means internally and externally and how can that then materialise into opportunities.”*



**Figure 4-5. Final causal map for Mr G, showing change over time.**

The second session with Mr G was carried out five months later and the changes to the causal map are shown in red in Figure 4-5. The significance of their stated organisational values had been reinforced in this period, as the relevance of the “play” theme was being enacted. Some additional linkages to their values, e.g. when defining growth, were added, along with some questions that were currently in his mind such as how flexible and transparent can they make the organisation and how can they provide opportunities for people to step into new roles or responsibility. He described the significance of the values as:

*“I would suggest we need to delve really deep into the values. But everything is flowing from that. So they are quite robust but there is a lot of intuition when we use those as a checklist for anything we do.”*

The application of values was selected as the context for the repertory grid card sort. In this instance there was one round of card sort data with a moderate correlation (0.72) to intuitive foresight and also a weak correlation (0.55) to creative intuition. When explaining his thinking Mr G described:

*“It’s that holistic view that leads into how to solve a problem. So I mean a holistic view, it’s not a technology conversation its where is the business pain point which is a holistic view that helps us solve the problem.”*

So the combination of holistic view for future problems links with intuitive foresight, while problem solving has a link to creative intuition.

The third session with Mr G took place five months later. The changes to the causal map are shown in green in Figure 4-5. He had essentially moved on from the “play” theme and there were no open questions in his mind about the questions that had previously been raised. He described how he likes to move quickly from one opportunity to the next, as he said:

*“I think that’s where it starts an impression or a gut or a feeling that things need to change or they are changing, and then I’d better have a look at that. Is it a good idea, rationalise it, justify it. And this bit here happens pretty quick for us. Not a lot of research goes into it, it’s just is it a good idea, yep no maybe, and do we justify it yep.”*

As there was no particular question or specific context for the repertory grid card sort, it was not carried out on this occasion.

Session four with Mr G took place four months later and the changes to the causal map are shown in blue in Figure 4-5. At this time large scale cloud based infrastructure offerings such as Microsoft Azure were entering the market with the potential to disrupt the backup and support aspects of the business, but also provide opportunity to use these services and lower back end costs. New questions such as how to manage their resources, take advantage of Azure and reposition themselves were in his mind. He also described wanting to move quickly to test new ideas:

*“So the idea is we'll fire some bullets. We'll have a few test runs and pilot it. And if it looks successful then we'll launch the full attack.”*

As this was a new opportunity space, a repertory grid card sort was not carried out at this session.

The fifth session with Mr G took place three months later. The changes to the causal map are shown in orange in Figure 4-5. At this time he was actually based in Europe and so the conversation and session was conducted via Skype. He still had the same questions in his mind but with one addition, which was potentially an entirely new offering which would target new markets. He described this as:

*“And horizon three is actually new businesses, or new solutions to new markets. And we've got one of those on the go that's percolating at the moment ... around compliance and data sovereignty. ... there's an opportunity there, to package that up, so that's what we are looking at, at the moment, so that's bubbling away.”*

Because of not being there physically the repertory grid card sort was not conducted at this session.



The sixth and final session was carried out with Mr G eight months later, due to his travel schedule. The changes to the causal map are shown in purple in Figure 4-5. At that time he was more confident about the answer to his remaining questions and of interest was the investigation in to the data security offering, which was not being actively pursued, but had not been entirely discarded either. As he described:

*“What we found was there were certain areas where it could be beneficial but the law firms were quite, I guess quite mature in that. I guess especially post-quake they'd actually done a lot to digitize their data and store it securely and so we thought that might be a good captive market, and it still might be but I think the offering will have to be slightly bigger point of difference to make that work, and I don't know quite how that looks yet.”*

This decision to not develop this new offering further at this time was selected as the context for the repertory grid card sort. However, there were no significant correlation between the card sort data and Sinclair’s framework.

Mr G	31Jan14	27Jun14	20Nov14	19Mar15	18Jun15	26Feb16
New or changed questions	9	3	0	4	1	0
Answered questions	-	0	12	0	0	0
Increased confidence	-	8	0	0	0	5
Decreased confidence	-	0	0	0	0	0
No change	-	1	0	0	4	0
Focus with intuitive component to the changing perspective	-	Applying the values	Moving quickly	Moving quickly to understand new solutions	New opportunity in data security	Not to actively pursue the data security offering

**Table 4-5. Time ordered table showing map changes and focus of sessions with Mr G.**

The time ordered Table 4-5 (Miles & Huberman, 1994) above, provides an overview of the focus of each session with Mr G and the changes to the causal map over time. Analysis of the coded transcripts of all sessions with Mr G reveal that the three most frequent first level codes were; feeling for an opportunity, acting and “what’s been done before”.

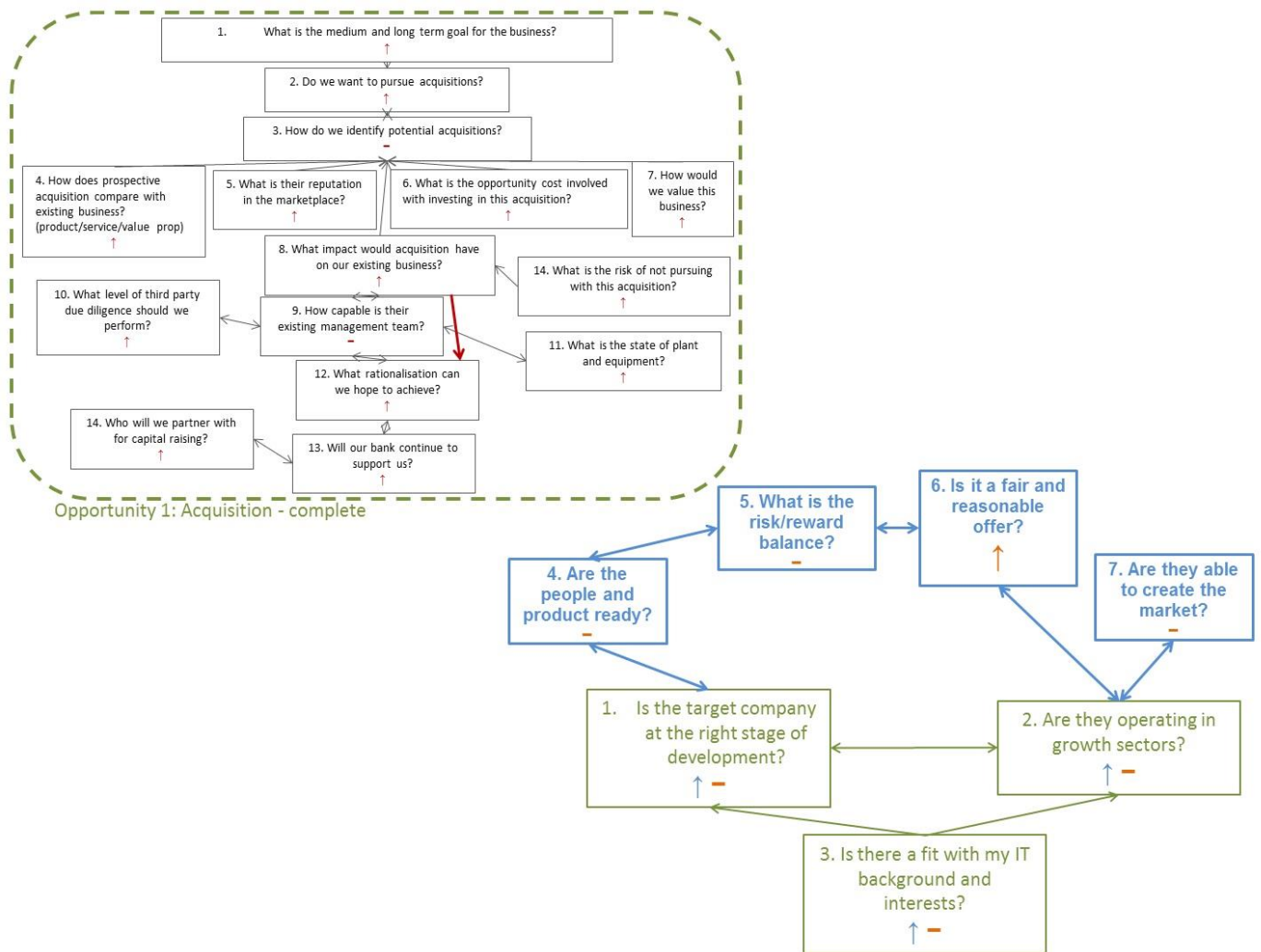
As a first level interpretation of the data, there were two key themes that emerged from the sessions with Mr G. The first was the desire and ability to move very rapidly to test any new ideas. This meant he was able to quickly evaluate if a new opportunity should be escalated, refined or parked. The second theme was how closely he worked with customers on these new ideas. Even with the internal culture aspect he was actually using this with customers and finding out what it meant for them. When the new data security opportunity emerged this had actually come directly from a customer and their requirements. And in investigating and evaluating this opportunity he had been able to test the ideas with existing customers very quickly and so discovered it was not perhaps as significant as they had first thought.

#### **4.2.6 Case 6: Mr M**

Mr M was the founder and chairman of a web services company with a range of business-to-business and some business-to-consumer services. The company had a largely domestic customer base. Mr M had been in the role for 17 years and the company had grown extensively during that time. When we first met Mr M was looking at exit strategy options for himself and acquisition options for the company. In the REI questionnaire, Mr M scored +32 in rationality, and +12 in experientiality.

Six sessions in total were carried out with Mr M over a 21 month period. At the first session, following the explanation of the research and completing the REI questionnaire, he described the questions he had in his mind relating to a potential strategic acquisition that was starting to be examined. His questions were to do with the strategic nature of acquisitions generally, and how this would impact the business, along with a series of questions about the value of any target, particularly the intangibles such as their people and their capabilities, the opportunity costs, and their reputation in the market. There were also questions related to the specific mechanics of a sale process, such as due diligence and capital partners, as can be seen in black in Figure 4-6 below. In describing the questions and their relationships he mentioned that it was an intuitive process, as he stated:

*“We are looking at our business what’s the goals, do we want to pursue acquisitions, how do we identify them, and if we do, what impact would an acquisition have on our business, and we get into how capable is the management team of the company we’re looking at...we do approach this process quite intuitively.”*



**Figure 4-6. Final causal map for Mr M, showing change over time.**

The second session with Mr M took place two months later. The changes to the causal map are shown in red in Figure 4-6. At this time they were moving ahead with the acquisition and were carrying out the due diligence in order to proceed. He noted that due diligence itself is a costly exercise and you only really carry it out on something you are already very confident about. As he said:

*“So when you go to undertake it, you only do it if you are very confident that you want to progress with it if it got to that stage”*

He also described the issue of there being a window of opportunity in time to seize the opportunities, and in terms of the time being right for the organisation itself. He described this as:

*“Because it is at a high level of intuition as to when is the right time to do this. And part of it is our own maturity as an organisation as well. Can we, you know one of the ways we kill a weed sometimes is by giving it a growth hormone. You know it grows so rapidly that it kills its resources and dies and I think there’s a lot of, you have to be at a certain stage of maturity in your business both revenue wise but also people skills wise before you can undertake acquisitions and not have them actually destroy you. So that’s an intuitive thing, well it’s analytical but there certain sense that yes we could do this and it wouldn’t kill us”*

The idea of there being a window of opportunity for this acquisition was selected as the context for the repertory grid card sort. In this instance there was one round of card sort data with a mild correlation (0.58) to intuitive foresight. He discussed the dynamics of their industry that he could see changing, which was a factor in their acquisition decisions.

*“In a way we are viewing the market differently than the way we viewed it in the past because of the fact we can see out there consolidation is inevitable whereas if you go back five years that wouldn’t have been the conversation people were having. So its newly created information in that sense, it is from a holistic point of view because everything from that industry we understand and we are bringing that to the analysis or view or that insight, rather than it just being one element of what we understand.”*

This view of the dynamics of the industry and his insight into how it will look in the future provides the link to intuitive foresight.

Session three took place with Mr M five months later and the changes to the causal map are shown in green in Figure 4-6. As a part of the previous acquisition and restructure Mr M had taken the opportunity to exit from his share of the business and was currently looking to re-invest in technology companies. As the previous opportunity space was completed he started a new causal map relating to his new role seeking investment opportunities. He described the questions he had in his mind being, are they in growth sectors, with fit for his technical interests, and importantly was the timing right. He described this as:

*“...and are at a stage in their development that they need the investment and the skillset that I can bring... Because timing is important because people fear losing control, not that you are investing to take control, there is some loss so you’ve got to feel like the gain is greater than the loss.”*

Because this was effectively a new map and no reference to change from the previous version, no repertory grid card sort was carried out at this session.

The fourth session with Mr M was carried out six months later. The changes to the causal map are shown in blue in Figure 4-6. In this time he had been active in the angel investment community and had the opportunity to see several start-up companies pitch for investment. He now had some additional questions that he typically used when evaluating the opportunities. In particular, with regards judging the people involved he said:

*“I suppose because when you are assessing someone’s ability to get the job done, or get it over the line, you are drawing on some of this, but you are drawing on other things as well... Are they an engaging person, do I think they can take people with them? Do they have leadership, aspiration, what are their energy levels? All those things have become for me indicators if someone is going to be successful in a role.”*

He had made one investment in a company and his decision making and feeling about the people in that company was selected as the context for the repertory grid card sort. In one round of the card sort there was a mild correlation (0.53) to intuitive foresight. In assessing the capability of the people involved, Mr M is assessing are they the people who can make the company successful in the future. He describes the process as:

*“Often you are doing it unconsciously as well. You are not every minute filtering and processing are you, there's an overall impression that goes on, so but there is deliberate analysis but then there is that feeling that you come away with that says yeah you know what I think we'll do this. Or you might think, mmm I don't know. So I think those are both equally important. Put it this way I wouldn't act positively unless both of those boxes are ticked.”*

This connection between the people and the future success or otherwise of the venture provides the link to intuitive foresight.

Session five with Mr M took place four months later and the changes to the causal map are shown in orange in Figure 4-6. At that time he had declined several investment opportunities. One particular opportunity he had given some serious consideration but decided not to pursue on the basis of the offer itself, as he described:

*“I mean there was some analysis that went on in terms of the numbers and how they stacked up and risk reward and return on investment all of that was there based on projections but it was more around the intuition of is it fair and reasonable, that drove it”*

This decision not to proceed with this particular opportunity at this time was selected as the context for the repertory grid card sort. In this case there were no significant correlations between the card sort data and Sinclair's framework.

The sixth and final session took place with Mr M after another four months. He did not have any current investment decisions he was pursuing but was considering getting his own new venture started. However, in discussing how his approach to his investment decisions had changed, or not, he stated:

*“If there’s one thing if I got any firmer in my thinking it’s around the people. I think at the end of the day you are backing the people. There are a lot of ideas and products and services but it’s the ability to execute and take it to market that’s key. And that’s all about people, so it’s taken me a while to really hone down on that. If I had a determining factor that would be it now and I suppose it’s a bit like hiring staff in a way, you don’t always get it right but you realise how critical those choices are for you in your business. And I think it’s true now of all start-ups and all businesses that they are people businesses at the end of the day and yeah, I’ve tightened my resolve around that space*

Because there were no significant current questions in his mind or changes to provide context, a repertory card sort was not carried out at this session and there was no change in the causal map.

Mr M	20Mar14	26May14	2Oct14	7Apr15	12Aug15	8Dec15
New or changed questions	14	0	3	4	0	0
Answered questions	-	0	14	0	0	0
Increased confidence	-	13	0	3	1	0
Decreased confidence	-	0	0	0	0	0
No change	-	2	0	0	6	7
Focus with intuitive component to the changing perspective	-	Window of opportunity for acquisition	-	Feeling about the quality of people	Decision not to pursue an investment opportunity	-

**Table 4-6. Time ordered table showing map changes and focus of sessions with Mr M.**



The time ordered Table 4-6 (Miles & Huberman, 1994) above, provides an overview of the focus of each session with Mr M and the changes to the causal map over time. Analysis of the coded transcripts of all sessions with Mr M reveal that the three most frequent first level codes were; evaluating timing, judging people and feeling for an opportunity.

As a first level interpretation of the data, there were three themes emerging from the sessions with Mr M. The first was relating to the phases he would go through and particularly the validation of an opportunity. The due diligence that was carried out for the business acquisition he was involved with was used to validate their thinking that it was a good opportunity. He was explicit in the fact that he had to be very confident in pursuing the opportunity to even engage in the due diligence phase because of the costs involved, but that it was a necessary part of demonstrating to others that this was a desirable path. Secondly was the importance of the timing of pursuing the opportunities. Both externally and internally the time had to be right to proceed with these opportunities and this was an intuitive decision. Thirdly was the importance of assessing the people involved in any of the opportunities. This was again based on intangible information and feelings about how credible and capable the people were likely to be.

#### **4.2.7 Case 7: Mr A**

Mr A was the sales and marketing manager of an international manufacturing company with a business-to-consumer hardware product. It had a global customer base that it reached through on-line channels. Mr A has a background in technical product management and marketing including being founder of his own company, and working for large multi-national companies. He has over 16 years of experience in technology marketing and

business development. When we first met he was exploring an opportunity for a software product with potential to create a start-up based around this. In the REI questionnaire, Mr A scored +24 in rationality, and +12 in experientiality.

Seven sessions were carried out with Mr A over a 22 month period. During the first session, following explanation of the research and carrying out the REI questionnaire, he described a new opportunity he was currently exploring that would become a stand-alone software start-up if it were to be fully developed. This was separate to his employed role at the time. As this was at a very early stage of development there were many high level strategic questions that were currently unknown, such as the business model, the opportunity itself, timeframes and resources required, as can be seen in black in Figure 4-7 below. There were also questions relating to the people involved and their time and motivation, both Mr A himself but critically his co-founder who was the software developer. How fast they would be able to get to market, balanced with how much investment they might require and be able to attract, were unknowns at this time and would influence the attractiveness of the opportunity. As he stated:

*“Opportunity profile will be something like this so you get to a smaller financial reward but you get there faster.”*

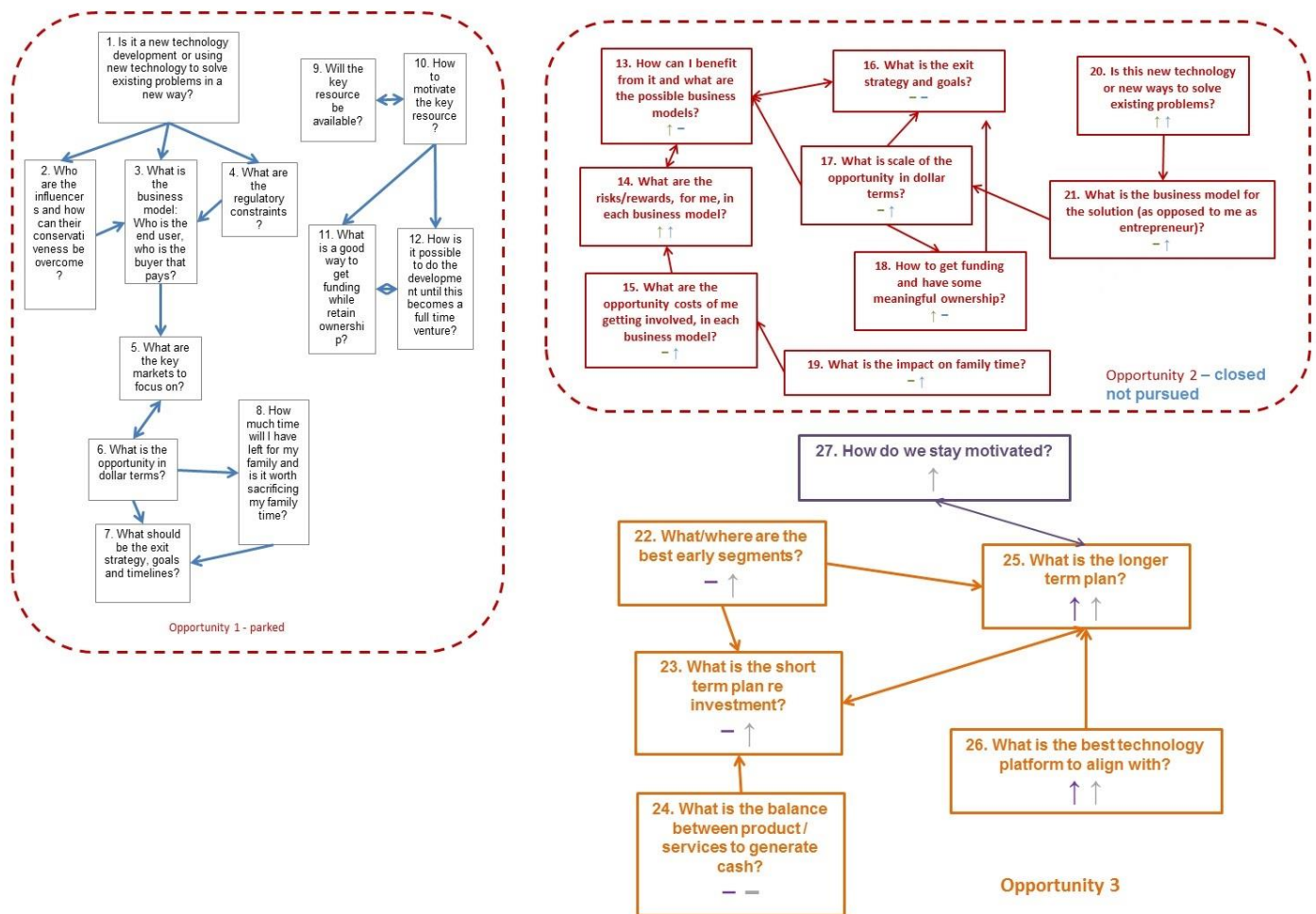


Figure 4-7. Final causal map for Mr A, showing changes over time.

The second session with Mr A took place three months later and the changes in the causal map are shown in red in Figure 4-7. In this time Mr A had left his previous employment and so had “parked” the opportunity that had previously been working on. This was due to him feeling that the opportunity would take a long time to develop and so require significant external funding, that he had not sought. As he describes:

*“To make a decision to put this on hold, I mean is not totally discarded, but there is no way for me now to be actively involved in it. So the decision to put it on hold was based on the simple factor that this would need some sort of funding... It may come back in a year, maybe less, but for now it is, because I do believe there is potential there, definitely.”*

He did have another opportunity in mind that would potentially have a quicker turnaround and so he was focussed on this new area. The decision was made to put on hold the previous causal map and develop a new one based on the new opportunity area. This new opportunity was related to the localisation of a process and supporting software for a specific niche in the food processing industry. The product had proved successful in other countries, but the local market potential was unknown at this time. The questions in Mr A's mind were related to how real the opportunity was, and also how could he best be involved. He was weighing the various ways he could structure a business to take advantage of the opportunity. He described this as:

*"I mean it's all risk and rewards, with risk there are probabilities so it's not just there may be no demand, it's what are the chances of breaking even? So it's really about underlying uncertainties having a range of outcomes. Each of those outcomes has a probability of occurring on you and on the business... So I mean that sort of intuitive approach to try and quantify it as much as possible."*

Because a new causal map was developed for the new opportunity, no repertory grid card sort was carried out on this occasion.

The third session took place with Mr A after another three months. The changes in the causal map are shown in green in Figure 4-7. He had been investigating the market and potential for the new product and was feeling more confident in several areas, including about how he would structure his own involvement. He described his investigation as:

*"In my mind, because I'm learning a more about those guys learning bit more about the investment landscape here... I haven't done any deliberate analysis"*

The general feeling for the opportunity was selected as the context for the repertory grid card sort. One of the card sorts revealed a slight correlation (0.54) to creative intuition.

*“I was not doing any deliberate analysis. I was getting information from talking to people, people would give me something, in a semi random way and I was starting to feel something new about this whole domain.”*

The fact that he had been in the market taking action by visiting and talking with potential customers, along with the synthesis of ideas from different and diverse sources, links with creative intuition.

Session four took place with Mr A four months later and the changes in the causal map are shown in blue in Figure 4-7. At this time he had conducted some further investigations of the market potential and had come to the conclusion that it was not worth developing any further. As he described:

*“We explored it, in a way we made an investment of time and money in the sense that we went to Melbourne and had some other expenses which was all effectively the cost of getting some certainty about the potential effort and rewards and risks. And we came to a conclusion it was not the right opportunity to be working on at this time. So for this opportunity I believe it is a dead end in the sense that since we are not going to do it.”*

The decision not to pursue this opportunity any further was selected as the context for the repertory grid card sort. However there were no significant correlations between the card sort data and Sinclair’s framework.

Five months passed before session five took place with Mr A and the changes in the causal map are shown in orange in Figure 4-7. In that time he had met some friends who were

software engineers and who had developed some novel chat bot technology. Mr A found this to be an exciting new market so he had joined with them to co-found a new company to develop and commercialise the technology. The market and potential applications for the technology were not known at the time. A new causal map was started for this opportunity and the main questions in his mind at that time were to do with the short term needs of generating cashflow and balancing that with the long term vision for the business. He describes this as:

*“I mean we will get there. Just a matter of how difficult it is going to be. Really a matter of starting it out because there is something to... I mean intuitively I feel there can be something really big here, but its classical start up challenge, find the product market fit to generate cash flow to do what you need to do”*

Mr A was very animated, clearly excited about the new technology and was keen to show it off and demonstrate it on his smart phone. Because this was a new causal map no repertory card sort was carried out at this session.

Session six took place with Mr A four months later with the changes in the causal map shown in purple in Figure 4-7. He had been talking with a lot of potential customers from a diverse range of industries and educating them about the capabilities of the new technology, and learning where the best fit was likely to be. But because it was such new technology this was a long process. Based on the interactions he was still very optimistic and had an increased confidence in their long term plans, but was conscious of the resource constraints they were operating with. As he said:

*“And I mean we are sort of here by accident. Sink or swim. So we are doing our best to swim and waiting for the right wave to take us to where we need to be. The biggest thing is to be flexible. Understand what’s happening and adjust as we go and have the stamina, and*

*what's the word for it, persistence. So I mean quite frankly it's still 50/50 in the end because we may totally run out of money before we get anywhere."*

His increased confidence in the long term plan was selected as the context for the repertory grid card sort. However, there were no significant correlations between Sinclair's framework and the card sort data.

The seventh and final session with Mr A took place three months later. The changes in the causal map are shown in grey in Figure 4-7. He was starting to develop several relationships with some potential partners who could define an application for their technology and provide a channel. He described one of these:

*"So they have a Facebook closed group of practitioners using their products and it is 1600 people a day, so intuitively meaning we haven't done any real research, I feel that it is going to be a very interesting opportunity"*

This particular opportunity was selected as the context for the repertory grid card sort. In this instance there was a high correlation (0.89) between one of the card sorts and expert intuition. Mr A had framed the sales channel aspect of the opportunity as being very similar to affiliate programmes that he had worked on previously. He described this as:

*"Because I worked with affiliate programs before, and it definitely makes me feel something quite strongly again without any hard data, that there is an opportunity there, what we don't know is how big that opportunity is and of course what effort we need to put in to take advantage of it. We haven't done any feasibility analysis."*

This strong connection to something he had experienced previously and so therefore had a clearer feeling of the direction to take, provides the significant link to expert intuition.

Mr A	5Mar15	17Jun15	24Sep15	13Jan16	2Jun16	7Oct16	28Dec16
<i>New or changed questions</i>	12	9	0	0	5	1	0
<i>Answered questions</i>	-	12	0	0	9	0	0
<i>Increased confidence</i>	-	0	4	6	0	2	5
<i>Decreased confidence</i>	-	0	0	0	0	0	0
<i>No change</i>	-	0	5	3	0	3	1
<i>Focus with intuitive component to the changing perspective</i>	Software start-up	New localisation opportunity	Investigating the market fit	Decision not to pursue current opportunity	New start-up	Increased confidence in the long term plan	Opportunity with new channel

**Table 4-7. Time ordered table showing map changes and focus of sessions with Mr A.**

The time ordered Table 4-7 (Miles & Huberman, 1994) above, provides an overview of the focus of each session with Mr A and the changes to the causal map over time. Analysis of the coded transcripts of all sessions with Mr A, reveal that the three most frequent first level codes were; “lot of uncertainty”, feeling for an opportunity and acting. It should be noted that the in-vivo code, “lot of uncertainty”, reflects where Mr A has specifically used those words, i.e. it is not an interpretation by the researcher.

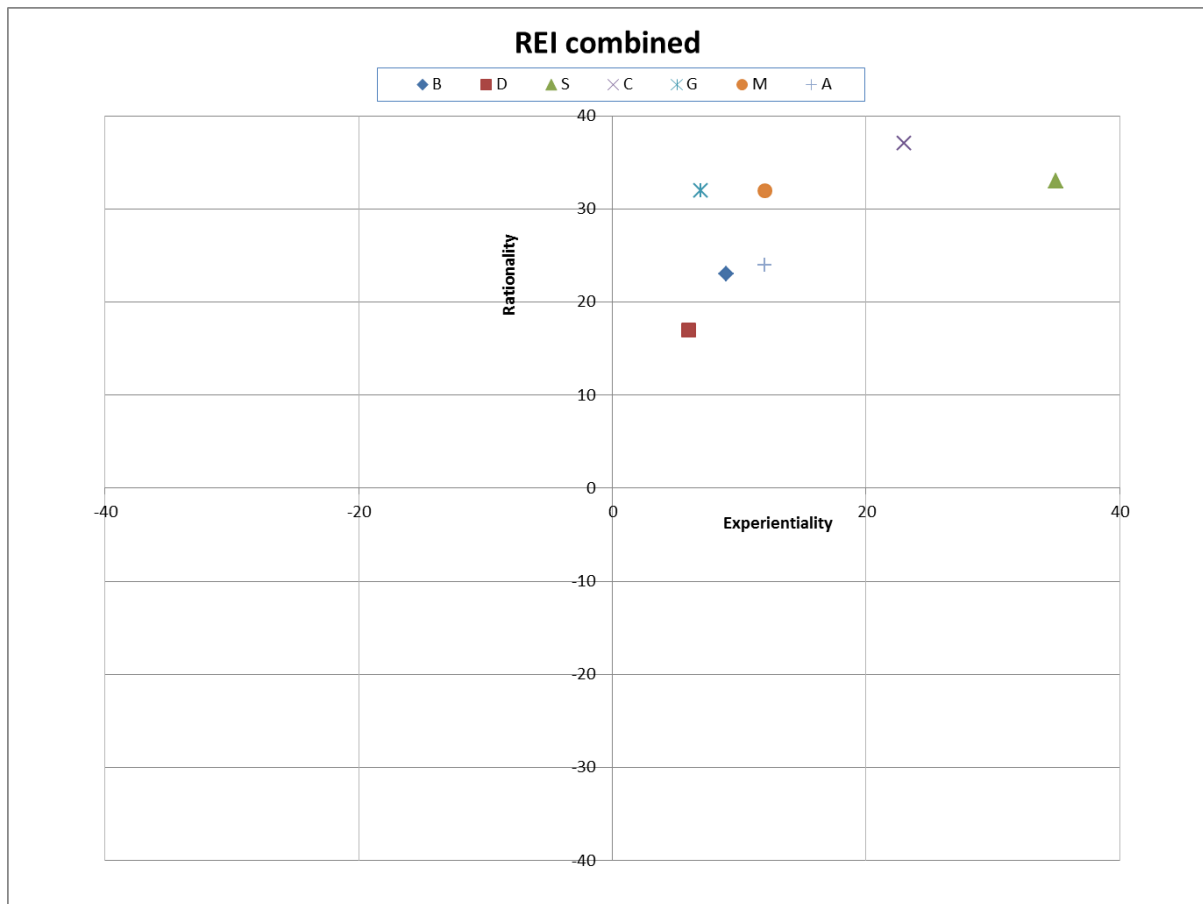
As a first level interpretation of the data, there were three key recurrent themes from the sessions with Mr A. The first was the need to break down the larger opportunity into smaller “wins”, in order to maintain the feeling of momentum. In the first two opportunities the amount of effort, time and money to validate the opportunity could not be justified and so he could not build any momentum and so ultimately it was decided not to pursue them. The third opportunity by contrast he had been able to generate enough interest to keep building momentum and so was continuing to explore and refine the offering in order to get it to market. The second theme was to do with motivation of himself and the team he was working



with. This is related to the momentum theme but was specific to the people involved in developing the product. In the last opportunity he had been able to stay motivated and keep the team motivated long enough to have prototype products to use as he continued to explore the opportunity space. In both the earlier situations he had not been able to do this. The third theme was the need for agility. The market for each of the opportunities Mr A explored was in the early stages, requiring flexibility to allow them to move with where they felt the new technology would best meet market needs. And to do so quickly to ensure they were able to both keep up with the technology itself but also to ensure they were able to get product into the market quickly, educating the market and ultimately generating revenue.

### **4.3 Cross case analysis**

Cross case analysis involving the search for common patterns across the cases while exploring and understanding the discrepancies, are a means of ensuring more robust theory and strengthening the validity of findings (Eisenhardt, 1989a; Miles & Huberman, 1994; Yin, 2009). In this research there are several ways in which the cases can be grouped for comparative analysis. Firstly there are the different groups of REI responses. As shown below in Figure 4-8, while all participants are in the upper right quadrant, Mr S and Mr C had significantly higher experientiality scores than the others.



**Figure 4-8. Consolidated REI responses**

When looking at commonalities and differences in the cases of Mr S and Mr C the most apparent common characteristic was both had feeling for an opportunity as their highest primary codes. However, when comparing across the other cases, Mr G also had feeling for an opportunity as his highest code and yet his was one of the lowest experientiality scores. Feeling for an opportunity was in fact common and significant to all participants, if not their highest primary code, within the top three for all cases. Both Mr S and Mr C also had a significant focus on validating their opportunity space during the sessions. As Mr S said:

*“And so as much as anything else this provided the evidence and the means to do what I want to do.”*

The other group also discussed how they validated their ideas and findings but this had slightly less significance than for Mr S and Mr C. This may be because they use and trust their system one intuition more than the other participants, and so in order to get buy in from other people have to ensure there is sufficient validated data to back it up.

While all participants are located in hi-tech sector, there is also a distinction to be made between those that are producing software based products as opposed to hardware. Examining these groups revealed a different approach to incubation of ideas. The software focussed group had no acknowledgement of incubation in their process whereas the hardware group found significant benefit in this, both in themselves and often in their customers or partners. This will be discussed in further detail in the following chapter.

## **4.4 Synthesis**

### **4.4.1 Thematic analysis**

Having generated a large number of initial codes from the conversations with participants as described in the above sections, these codes themselves were then examined for patterns, themes and higher order concepts (Braun & Clarke, 2006; Miles & Huberman, 1994). Seven second order concepts were identified. These can be divided into two groups. The first group is related to the cognitive process deployed and these five concepts, their contributing codes, established definitions, and related existing concepts are shown below in Table 4-8, and discussed in further detail below.

First order codes relating to cognitive process	Second order concept	Definition	Similar concepts or alternative descriptions
<ul style="list-style-type: none"> <li>“what’s been done before”</li> </ul>	Expert intuition	<p><i>“Affectively charged judgments that arise through rapid, nonconscious, and holistic associations”</i> (Dane &amp; Pratt, 2007, p40)</p>	<ul style="list-style-type: none"> <li>Intuition as analysis frozen into habit (H. Simon, 1987)</li> <li>Naturalistic Decision Making (Klein, 2009)</li> </ul>
<ul style="list-style-type: none"> <li>Predicting the future</li> <li>Feeling for an opportunity</li> <li>Searching</li> <li>“lot of uncertainty”</li> <li>“gut feel”</li> <li>Managing risk</li> </ul>	Intimation	<p><i>“slow-to-form affectively-charged judgments occurring in advance of an insight that combine knowledge in novel ways based on divergent associations, and which orient behaviour in a direction that may lead to a creative outcome”</i> (Gore &amp; Sadler-Smith, 2011, p. 308).</p>	<ul style="list-style-type: none"> <li>Creative intuition (Sadler-Smith, 2015)</li> <li>Entrepreneurial intuition (Crossan et al., 1999)</li> <li>Intuitive creation (Sinclair, 2011)</li> </ul>
<ul style="list-style-type: none"> <li>Investigating</li> <li>Synthesizing</li> <li>Understanding the problem</li> </ul>	Investigation	<p><i>“the focused search and research for special-purpose information”</i> (Mintzberg, Raisinghani, &amp; Theoret, 1976, p261)</p>	<ul style="list-style-type: none"> <li>Discovering, Enacting (Daft &amp; Weick, 1984)</li> <li>Interpreting (Crossan et al., 1999)</li> </ul>
<ul style="list-style-type: none"> <li>“confidence has grown”</li> <li>Validating</li> </ul>	Validation	<p><i>“consideration of the ideas generated, selection among them, and formalization or communication of the selected approach”</i> (Amabile, 1997, p23)</p>	<ul style="list-style-type: none"> <li>Externalisation, i.e. tacit to explicit knowledge (Nonaka et al., 2000)</li> </ul>
<ul style="list-style-type: none"> <li>Incubating</li> </ul>	Incubation	<p><i>“first is the negative fact that during incubation we do not voluntarily or consciously think on a particular problem, and the second is the positive fact that a series of unconscious and involuntary (or foreconscious and forevoluntary) mental events may take place during that period”</i> (Wallas, 1926, p86)</p>	<ul style="list-style-type: none"> <li>Unconscious Thought Theory (Dijksterhuis &amp; Nordgren, 2006)</li> </ul>

**Table 4-8. Judgement process codes to second order concepts**

The first of these second order cognitive concepts is expert intuition as defined and discussed in some detail previously. In the participant cases this was characterised by the notion that a certain situation had been seen before, and so a judgment was made immediately.

The second concept is intimation. Table 4-8 above shows a recent definition of intimation by Gore and Sadler-Smith (2011), which they also refer to synonymously as creative intuition (Sadler-Smith, 2015). This is similar to expert intuition in that it is affectively charged. But in contrast it is slower to emerge and points to a direction rather than a singular judgement. In the participant cases this was characterised by the feeling of an opportunity that would be valuable in the future. It also has elements of predicting the future, searching, and gut feel, but also with some uncertainty and risk that will need to be navigated. This is found to be quite distinct from expert intuition and is closely aligned to entrepreneurial intuition (Crossan et al., 1999) as described previously. Although entrepreneurial intuition was useful for making the distinction from expert intuition the definition of intimation is more precise in the description of the cognitive processes that the individual uses and so intimation will be adopted for the further description and discussion that follows. Sinclair uses the term intuitive creation in her framework of intuition although with a less clear definition (Sinclair, 2011). Intimation is also mentioned in Wallas' (1926) original creative process however was not one of his four main steps in the process. Sadler-Smith (2015) has suggested that in fact it should be included as a distinct stage in models of creativity.

The third concept is investigation. Table 4-8 above shows a definition of investigation as used in strategic decision making (Mintzberg et al., 1976). It is described as being where

informal verbal communication is engaged particularly in early stages of diagnosis of opportunities. In the participant cases this was characterised by taking action to seek and synthesise new information in order to better understand the problem or opportunity. This is similar to the discovering and enacting modes of Daft and Weick's (1984) model of how organisations engage with their environment, although from an individual rather than organisational perspective. It is also similar to the interpreting phase of Crossan, Lane and White's (1999) "4I's" model of organisational learning. They also describe how language is important in this phase to develop shared understanding.

The fourth concept is validation. Table 4-8 above shows a definition of validation as used in Amabile's model of entrepreneurial creativity (1997). It is described as a key phase of codifying knowledge in order to communicate it more widely. In the participant cases this was characterised by increased use of hard data to validate investigations, communicate with others, gain commitment and justify increased confidence. This is similar to the externalisation phase of the SECI model in organisational knowledge management where tacit knowledge is converted to explicit knowledge in order for it to be shared (Nonaka et al., 2000).

The fifth concept is incubation. Table 4-8 above shows a definition as used in Wallas' (1926) original description of the creative process. This is where the subconscious is able to continue to work on an issue when conscious attention has stopped. This often takes some time and eventually a deeper insight emerges. In the participant cases this was characterised by a deliberate phase of allowing ideas to take time to develop. This took place both with the participants and also with other people they dealt with. This is similar to unconscious thought

theory that has recently found many cases where deliberately allowing the unconscious time to process information results in better results (Dijksterhuis & Nordgren, 2006).

The second group of second order concepts relate to the subject of the judgements being made and there were two key concepts to emerge in this category. The first of these concepts is to do with people. Much of the focus of understanding the opportunity space had large aspects to do with judging people, could they be trusted, could they work alongside them and understanding of the other people's perspectives. There was also an element of self-awareness demonstrated. The specific codes that contributed to this concept were:

- Understanding other people's perspective
- Trusting
- Partnering
- Judging people including self

Chapter six which follows is dedicated to discussing further these people specific aspects.

The second subject concept was associated with timing. This was characterised by issues such as moving quickly to engage or test ideas and judging when the time was right to act or not. The specific codes contributing to this concept were:

- Judging timing
- Deciding not to pursue
- Acting
- Moving quickly

Chapter seven which follows is dedicated to discussing further these temporal aspects.

As described in chapter 3, the philosophical foundations of this study are based on pragmatism while the theoretical framework is based on dual process theory, along with

creative action theory. In keeping with the pragmatic orientation the emergent concepts were next examined from a dynamic and recursive process perspective (Farjoun et al., 2015). It was found that the participants did not employ one of these concepts throughout the entire opportunity discovery process but rather they went through successive phases, the exception being expert intuition. As has been discussed earlier, and researched extensively elsewhere, expert intuition happens rapidly and results in a judgement and therefore the end of that particular process. In most other instances however we can see that intimation is the earliest part of the opportunity discovery process. Investigation follows this with action being the cause to move from one phase to the next. Action is required in order to go to the market, talk with customers, discuss options and so on. In line with creative action theory, understanding emerges by taking action (Joas, 1996). Validation then follows investigation, again driven on by action. Action is required to gather data and collate and present this to other parties. Investigation and validation are both heavily influenced by interactions with people. Finally, incubation takes place but this feeds into a new cycle starting with intimation once again. Incubation and the restarting of another cycle are driven by reflection, including sub-consciously, on the findings of the earlier phases. This cycle is mapped against existing literature and discussed in further detail below.

#### **4.4.2 Theoretical synthesis**

With the above emergent second order concepts in mind and following an abductive process as described previously it is important to iterate between existing theory and the emergent data (Eisenhardt, 1989a). Existing models of creativity have much in common with the emergent concepts mentioned above. Firstly, they are both focussed on individuals rather than organisational learning. Secondly, the cognitive phases suggested have many

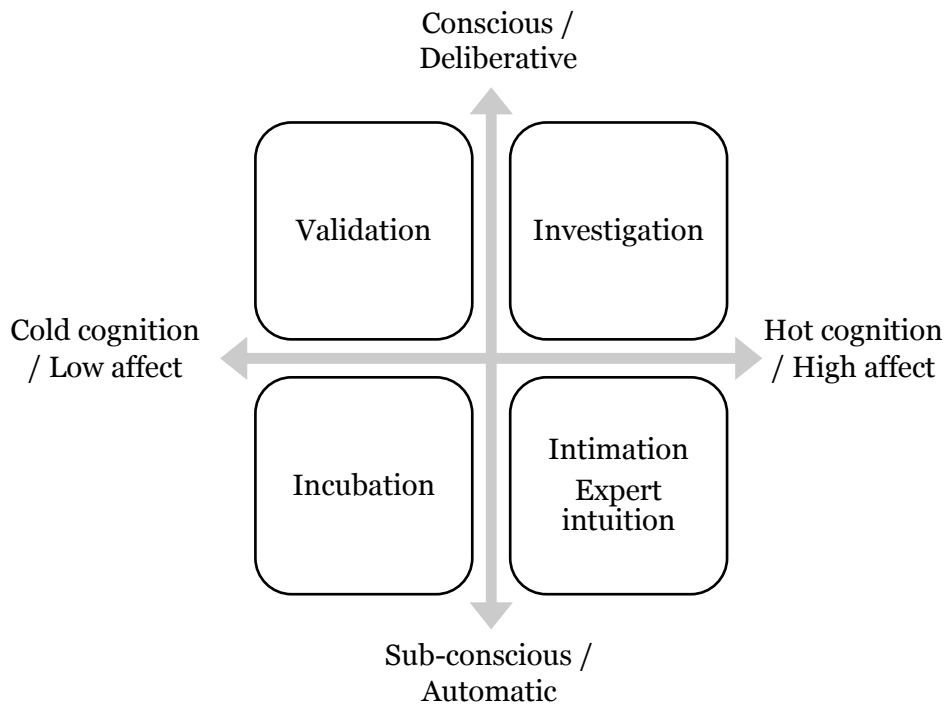


similarities. As described earlier, the most influential of the creativity models is the four stage model of Graham Wallas (Wallas, 1926). His four stages are Preparation, Incubation, Illumination and Verification. Also as mentioned above Sadler-Smith has suggested that on re-reading of Wallas' work, intimation should actually be afforded an independent place in the model, preceding illumination (Sadler-Smith, 2015). The various phases are also described in terms of grades of consciousness, ranging from non-consciousness (incubation), to fringe consciousness (intimation) and conscious (preparation, illumination and verification). The intimation phase in the creativity model and the emergent concepts from the research would appear to relate to similar processes. Illumination has some similarities with investigation concept but is perhaps less exploratory. Verification is similar to the concept of validation and has been described as such in some models (Amabile, 1997), and incubation is the same in both cases. Preparation did not appear as one of the major concepts from the research. This may be due to the fact the research was examining ongoing opportunities and so preparation could be considered to be all the participants prior knowledge.

However, there are two significant limitations that the models of creativity have in this application to strategic cognition. The first is that while the creativity models dedicate significant attention to the different levels of consciousness, they do not appear to align well with modern dual process theory of cognition. If the conscious phases of preparation, illumination and verification are high in system two conscious analytic processes, how do they also relate to system one intuitive processes? Is the fringe consciousness of intimation the same as system one intuition and affect or perhaps a sub-set? These questions are unresolved. The second aspect that distinguishes the models is the cyclic nature of the process. The model of creativity is seen as a relatively linear process, moving from one phase

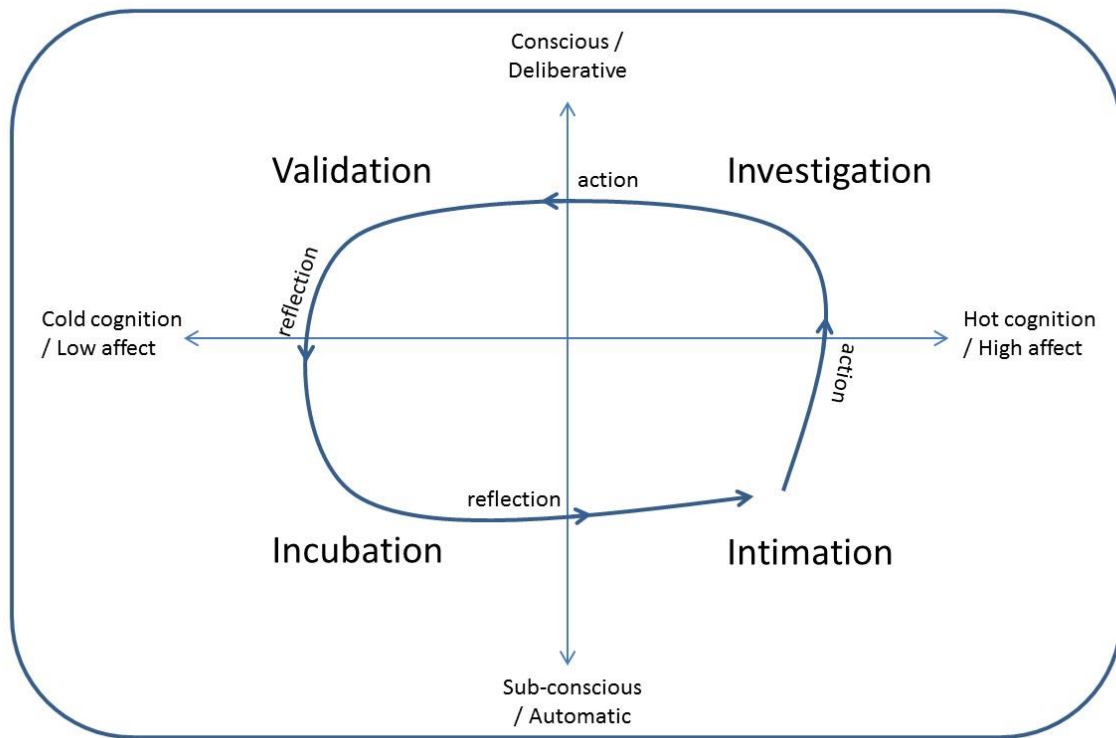
to another with the creative idea emerging as a result. The emergent concepts from the research on the other hand are an ongoing process through the phases over time.

The five main process concepts from the emergent data can be discussed in terms of their dual process theory characteristics (Hodgkinson & Clarke, 2007; Hodgkinson & Healey, 2011). Expert intuition and intimation are both primarily based in system one sub-conscious feelings with high affect, and very little system two conscious analysis involved. The difference being expert intuition is fast and results in a judgement whereas intimation can be slower to develop and points to a direction or feeling for the potential opportunity. Investigation has strong elements of system one affect as a person is navigating the space but is also making use of system two conscious analysis in uncovering new data and information. Validation then has low system one affect but is largely driven by data and so is using conscious deliberate system two analysis. Incubation is a sub-conscious operation but is below the normal awareness of affect or feelings. Based on this, the concepts can then be mapped onto the Hodgkinson and Healey's (2011) dimensions of strategic cognition as shown below in Figure 4-9.



**Figure 4-9. Updated typology of strategic cognition with second order concepts from research data.**

By synthesising the static dual process typology above with the process stages discussed earlier reveals a dynamic process model of how strategists navigate new opportunities, as shown in Figure 4-10. The cycle starts in the intimation quadrant and may increase or decrease with each cycle, forming a spiral. For this reason the model will be referred to as an intimation spiral. Note expert intuition is not included in this model. This is because while it may be located in the lower right quadrant it does not form part of the dynamic process due to it being a singular point where a rapid and final judgement is made. Creative action drives the cycle around the phases with action being required in order to progress the cycle from intimation to investigation and on to validation. Reflection is then required in order to progress to incubation and back to intimation. The nuances of the intimation spiral will be examined in further detail and tested for validity against the case data in the following chapter.



**Figure 4-10. Emergent model of the dynamic process of opportunity navigation, the intimation spiral.**

## 4.5 Analysis and synthesis summary

A rich description of each of the seven cases has been presented and the nuances of each case have been discussed. The emergent themes from the individual cases were drawn out and the similarities and differences across the cases have been highlighted in cross-case analysis. Finally by bringing together the emergent themes into higher level concepts, contrasting with existing literature and synthesising these with the theoretical frameworks discussed in the previous chapter, has allowed a new emergent model of the process of opportunity navigation to be constructed.

This emergent model, which extends Hodgkinson and Healey's (2011) static typology of strategic cognition, revolves around the process that the strategists in the study went through when navigating their opportunities. They started with intimation, which is largely based in the sub-conscious with high affect or feelings, with little or no conscious analysis. They then take action which moves them to a phase of investigation. In this phase there are still high levels of affect, but also high levels of conscious analysis. They then move to a phase of validation by taking specific actions to gather hard data. This has high level of conscious analysis but low affect. By reflecting on the data gathered they move to a phase of incubation where analysis and affect are both low. In this phase there is subconscious reflection and this will emerge into sub-conscious affect, and intimation to complete the cycle.

In addition to this process model of navigating the opportunities, concepts relating to people and timing, also emerged from the data and have a significant bearing on how the model works in practice. The robustness of the model, the nuances it implies and the impact of the additional concepts will be further tested and discussed in the following chapters.

## 5 Intimation Spirals

In the previous chapter an emergent new model, an intimation spiral, was introduced explaining the process of strategic opportunity navigation, extending Hodgkinson and Healey's (2011) static dimensions of strategic cognition. In this chapter the nuances of this emergent model are examined, tested against the data and refined (Dubois & Gadde, 2002). The first section will examine the differences and similarities with other theories and existing literature to build further validity (Eisenhardt, 1989a). The second section in this chapter deals with one significant implication of the model, resulting from increasing or decreasing momentum as the cycle progresses. Rather than an orderly circle of phases, the model is more likely to trace an increasing or decreasing spiral around the four quadrants of the model, starting and finishing in the intimation quadrant. Intimation spirals from each case are examined in order to build validity (Yin, 2009). In the third section the participant's feedback, which as described earlier was a part of the designed research method (Miles & Huberman, 1994), is discussed including how the model was refined as a result of feedback to make it more robust.

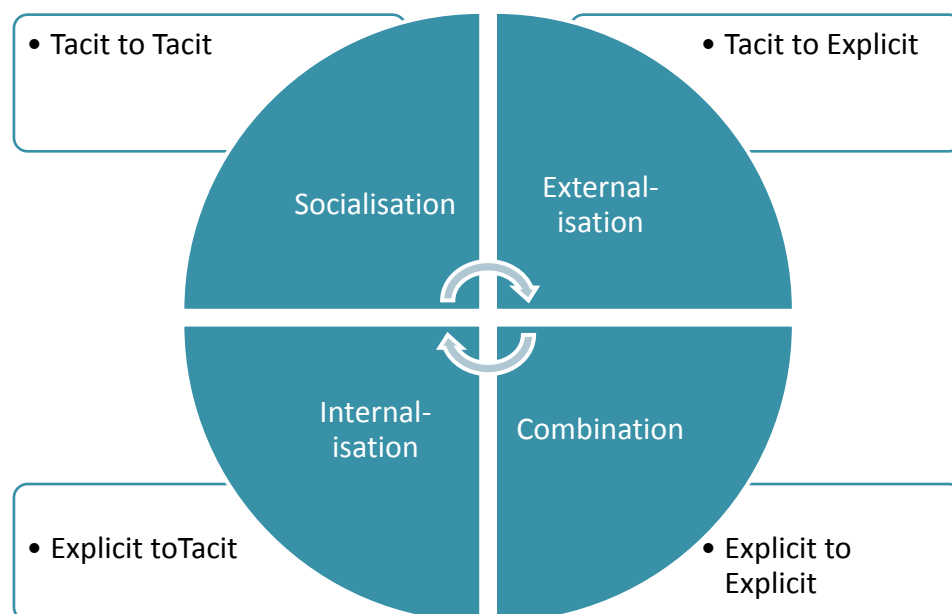
### 5.1 Similar theories

Similar theories from a broad range of literature have been compared and contrasted with the emergent model in order to build further validity and increase the conceptual level (Eisenhardt, 1989a). Theories from the fields of knowledge management and organisational learning and strategic planning generally are examined alongside intimation spirals in this section.

In the area of knowledge management, the SECI (Socialisation-Externalisation-Combination-Internalisation) model of knowledge creation and conversion between tacit and explicit knowledge (Nonaka et al., 2000), also has some similarities with intimation spirals. In particular, this model also is used to depict a dynamic process of positive reinforcement as the cycles repeat. As the authors state (p12):

*“It is important to note that the movement through the four modes of knowledge conversion forms a spiral, not a circle. In the spiral of knowledge creation, the interaction between tacit and explicit knowledge is amplified through the four modes of knowledge conversion. The spiral becomes larger in scale as it moves up through the ontological levels.”*

The model is shown below in Figure 5-1 below. As highlighted in the literature review, tacit knowledge has some similarity to system one feelings. Tacit knowledge is based on affect/feelings and is not able to be articulated. Explicit knowledge on the other hand is codified and analysable and so has much in common with system two thinking (Polanyi, 1968).



**Figure 5-1. SECI Model of knowledge creation and conversion (Nonaka, I., Toyama, R., & Konno, N., 2000, p12).**

However, there are two fundamental differences in the models. The first is in terms of the unit of analysis. The SECI model is largely concerned with organisational learning, or at least how an individual can convert and share knowledge within an organisation. Intimation spirals on the other hand are primarily concerned with how an individual understands an opportunity space and the balance of intuition and analysis throughout that process. Another difference is that intimation spirals can increase or decrease depending on the increasing or decreasing momentum of the opportunity. SECI knowledge spirals however tend to always be increasing as knowledge is gained. Little attention is given to the loss of knowledge.

Another related model is the 4I framework (Crossan et al., 1999), introduced earlier. The four stages of this model are intuiting-interpreting-integrating-institutionalising. This shares some similarities with intimation spirals in that it is primarily concerned with entrepreneurial intuition/intimation as opposed to expert intuition. It also starts with the individual in the intuiting and interpreting stages. One area for further examination is the 4I's framework then goes on to the integrating and institutionalising phases. There was some evidence from Mr A's case in particular that the early stages of the intimation spiral are down to the individual, and as they cycles continue and expand this extends to their perception of others feelings. This will be explored in further detail in the following chapter. The 4I framework does suggest there is a non-linear aspect to the progression with feed-forward and feed-back elements discussed, however this is not necessarily cyclical. The major distinction between these models however is in the role of dual process theory. In the 4I model an individual moves from system one only intuiting to system two only interpreting with no potential for both aspects to be present at the same time.



Discovery driven planning (McGrath, 2010; McGrath & MacMillan, 2009) has been proposed as a strategic approach to dealing with highly uncertain environment. McGrath and MacMillan propose that when starting to investigate an opportunity there is a high ratio of assumptions to knowledge. It is proposed that by explicitly listing the assumptions and testing each with small experiments allows for discovery and learning to take place and reduces the risk of any given experiment to manageable levels, similar to the affordable loss principle of effectuation (Sarasvathy, 2001a) from entrepreneurship. Through this process of experimentation the initial assumptions can be converted to knowledge and so the ratio of assumptions to knowledge can be reduced. The iterative nature of discovery driven planning has some parallels with intimation spiral, however as well as being at an organisational rather than individual level, it makes the assumption than assumptions are known at the outset and so can be explicitly tested. The centrality of creative action (Joas, 1996) to the intimation spiral shows than many uncertainties and assumptions will not be known at the start and will only be uncovered while taking action. Nonetheless the importance of iteration and learning from action is common to both these models, along with other approaches such as design thinking (Brown, 2008; Liedtka, 2015; Martin, 2009), and lean start-up (Blank, 2013; Ries, 2011).

## **5.2 A question of momentum**

In re-examining how the emergent model relates to the research cases, it is useful to carry out an additional cross case analysis (Eisenhardt, 1989a). In the majority of cases the participants tended to continually increase in confidence in their questions over time, and the opportunities gradually progressed, as seen in the previous chapter. In fact there is a natural survivor bias in research of this nature, where only outcomes that are successful remain

available to be studied (Nightingale & Coad, 2014). Naturally then there is a tendency to study how positive outcomes come about and an over attribution of entrepreneurial intuition in this process (Blume & Covin, 2011). However, because of the research design employed in this study during the course of the data collection there were some opportunities where the opportunity was either parked or abandoned. This was seen particularly in Mr A's case.

During the second session with Mr A, he described an opportunity that he had been investigating that he had then decided not to pursue:

*“OK the reason this is parked is that it requires a long development project and quite substantial resource to actually work around regulatory constraints and make sure the influencers who are critical in this case are on board. So this is really a project that will take well definitely years, not months and require substantial investment. So I mean, it was feasible to get it rolling and keep it rolling while I was basically able to subsidise my time spent on this by working on other area, but now I am looking for other sources of income this is just not sustainable financially.”* (emphasis added)

For the opportunity to remain feasible, he needed to “*get it rolling and keep it rolling*” implying that momentum is required. Inertia has often been discussed as a feature of organisations and strategic momentum contributes to the acceleration or deceleration of initiatives (Amburgey & Miner, 1992; D. Miller & Friesen, 1982; Turner, Mitchell, & Bettis, 2013). Strategic momentum has been defined as, “*the tendency to maintain or expand the emphasis and direction of prior strategic actions in current strategic behaviour*” (Amburgey & Miner, 1992, p335). Returning to Mr A's opportunity, in order to progress the opportunity he felt he was no longer able to maintain the force required to overcome the resistance that would eventually cause the opportunity to lose momentum and eventually slow to a halt.

The other participants also spoke in terms of building momentum through the phases. Mr C when talking about putting a Business Development Manager in place said, *"It's certainly a way of accelerating."* Mr D when referring to the involvement of a government agency said, *"In some ways what it means is it will slow things down."* When discussing the introduction of new sales tools, Mr B said, *"so we've proved it all works, now we want to amp it up."* Mr G used the phrase, *"how does it look, will it actually fly"* to describe one of their new offerings. Mr S said they, *"had a view on this way back in the day and so we moved a little bit earlier than everyone else."*

The second of Mr A's opportunities that he investigated was captured over several sessions. In the first intimation stage he described the opportunity and his early thoughts on how it might play out. His language was relating to his own thoughts, *"...how can I make it a business opportunity"*. He then went into an investigation phase where he took action and started talking with people. But this was still very much personal to himself, *"I was getting information..."* From this he was able to validate his early impressions and gained, *"... some certainty..."* As mentioned in the earlier cross case analysis and typical of the software focussed participants, he did not mention an incubation phase. He then re-enters another intimation phase and he starts referring to we, *"...if we have a task, we will start next year"*. He enters the second investigation phase by again taking action and this is a collective effort where, *"we explored it..."* The second validation phase allowed them to quantify the effort involved, *"... a huge amount of business development..."* And finally, *"we came to a conclusion it was not the right opportunity to be working on at this time."* He had reached a conclusion that the effort required would be too great in order to build the momentum necessary to be successful at this time. The phases he went through became a decreasing spiral until the decision to stop working on this opportunity, as shown in Figure 5-2 below. It

is interesting to note he did not acknowledge any time in the incubation phase. This will be discussed in further detail later.

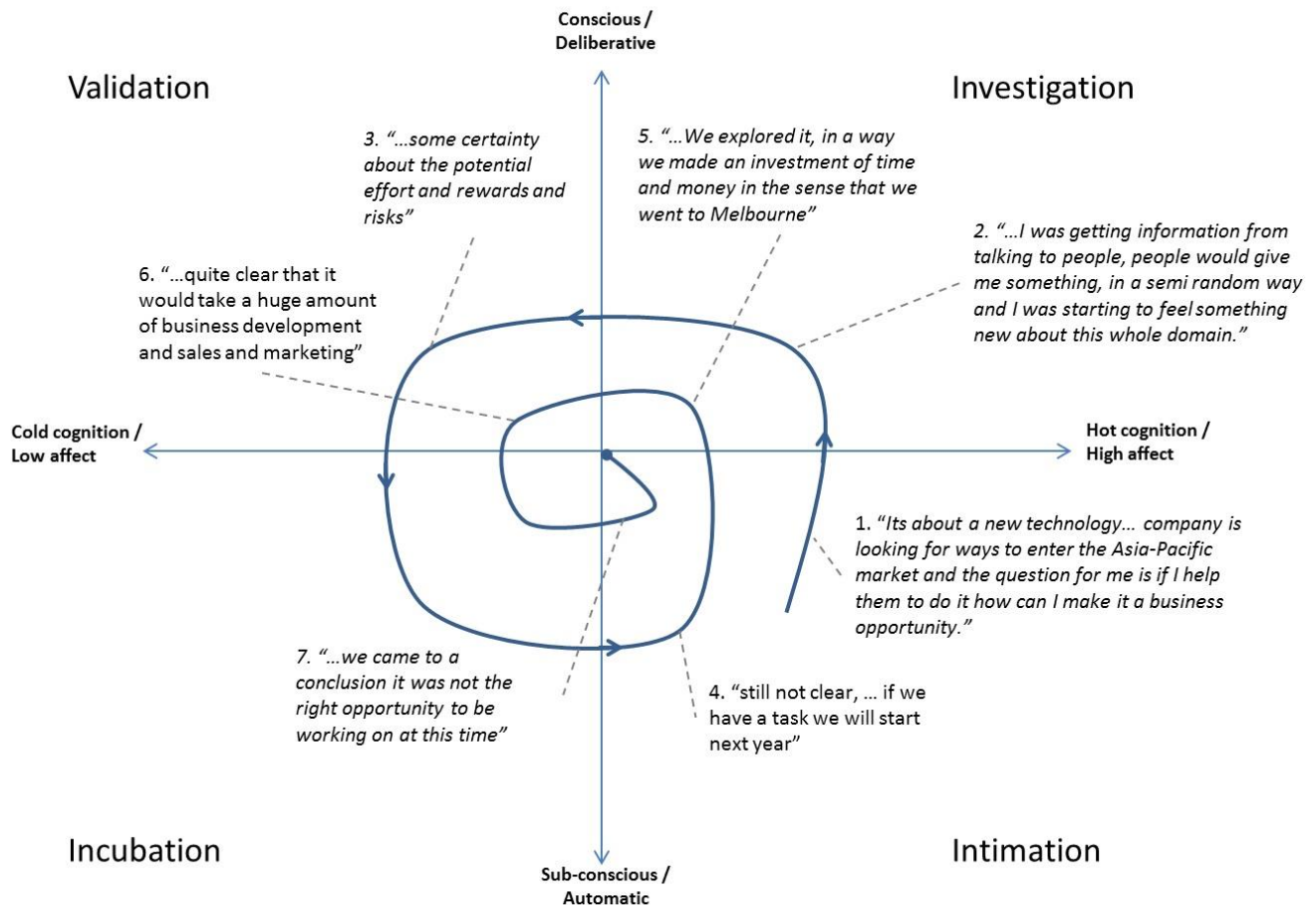
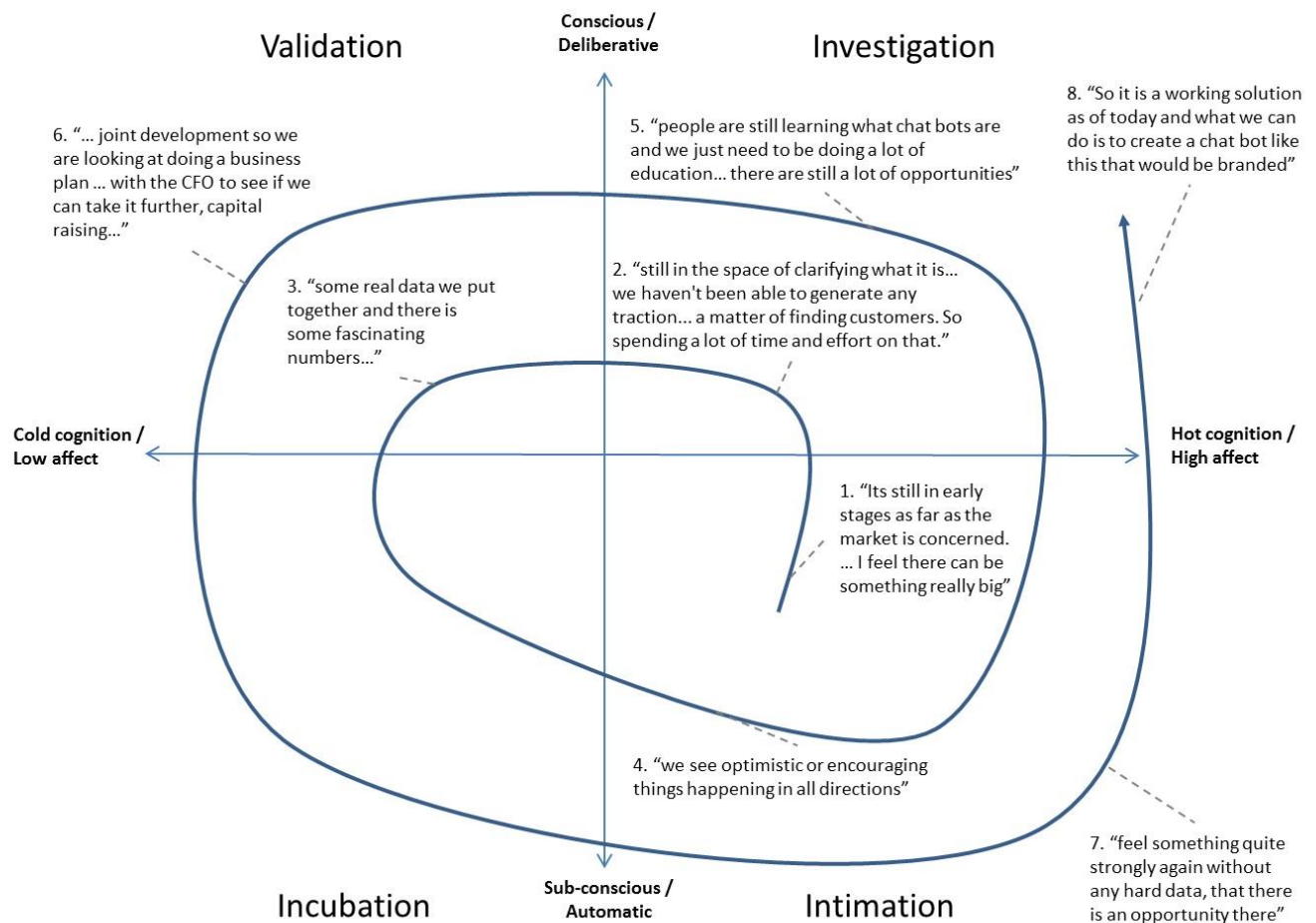


Figure 5-2. Decreasing intimation spiral for Mr A

Compare this spiral with Mr A's later sessions where he was actively pursuing the chat-bot opportunity for his new company. The expanding intimation spiral for this opportunity is shown below in Figure 5-3. In this instance he also started with positive feelings about the opportunity and he spoke early on about trying to "generate traction", in order to gain momentum. Initially he was actually finding it difficult to do this but he was continuing to take action by engaging with people, educating them and trying to find a good

potential first customer. Later on he was able to validate some aspects by creating a good case on paper, and this led to him feeling optimistic and encouraged. He then took action again and carried out more market education so he could continue to investigate the range of opportunities. Eventually he found a partner who was going to help them further validate by building a business case and although he still did not have hard data, he felt even more strongly that there was a good opportunity. Finally, they had created a prototype system that allowed Mr A to demonstrate capabilities and further investigate how they could work with potential customers. Similar to the earlier opportunity Mr A started early on by referring to the opportunity in terms of his own feelings, “*I feel*”, but in this instance more quickly moved to collective language, “*we haven’t...*” This may be due to the timing of the sessions where Mr A had already been working closely with his co-founders, whereas the earlier opportunity he had more time to evaluate it on his own. In this case the positive reinforcement he was able to create through his action helped him build momentum which helped him feel more optimistic and so carry on increasing his efforts. Again however there was no acknowledgement of any incubation.

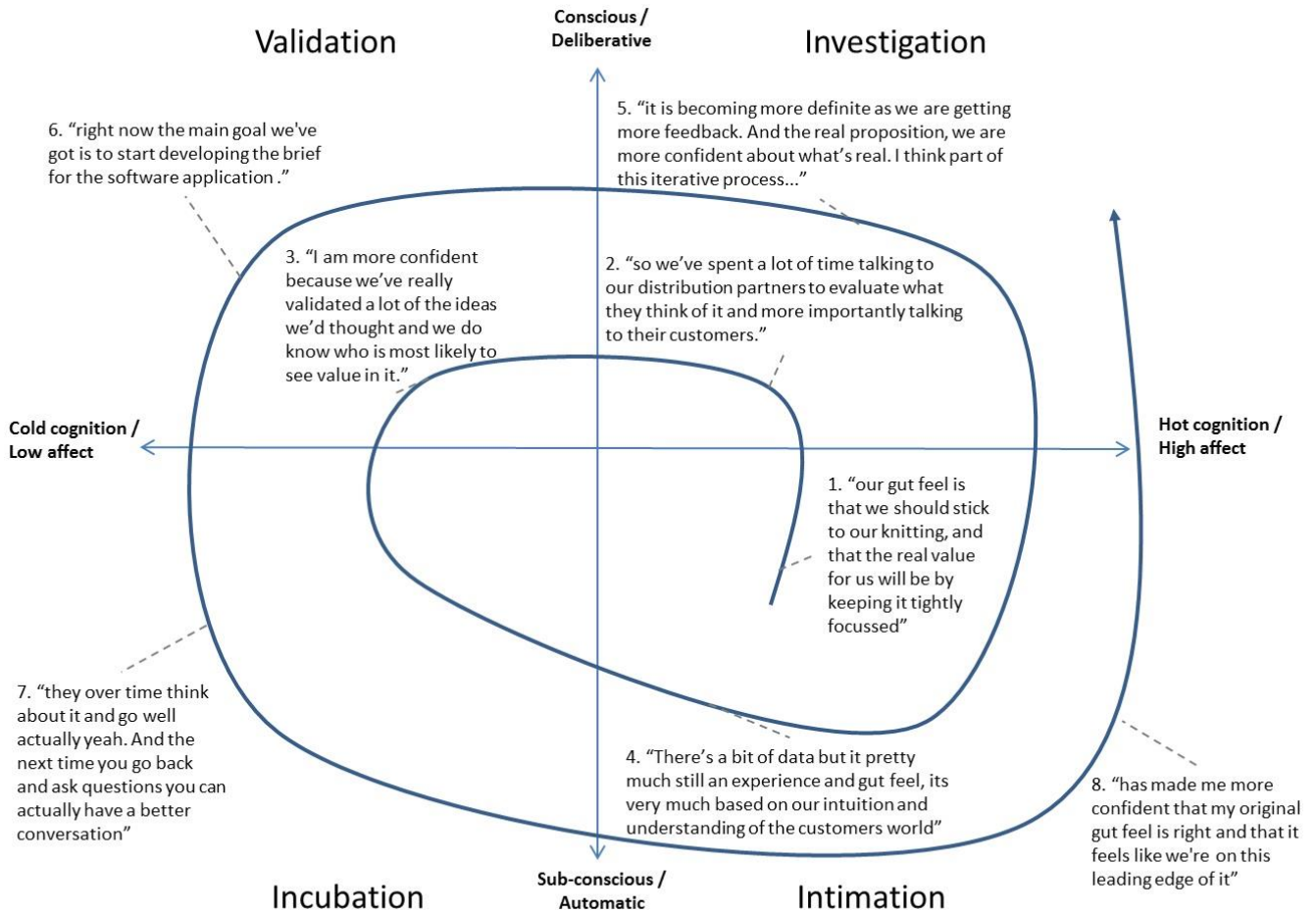


**Figure 5-3. Expanding intimation spiral for Mr A.**

Comparing the two opportunities, the amount of effort that Mr A applied in the early stages of each was similar. But the forces of resistance were higher for the first opportunity and so he was not able to build any momentum into the opportunity development and the intimation spiral decreased until the final decision to stop work on it. In contrast, forces of resistance were still present with the chat bot opportunity, but he was able to overcome these by building a case, feeling optimistic, and continuing to take creative action. The encouragement he felt allowed him to build momentum and the intimation spiral expanded allowing him to carry on developing the opportunity.

In Mr D's case, he was able to build momentum over the course of the two years while he was developing the new technology offering as can be seen in Figure 5-4 below. In the first session he spoke of their "*gut feel*" relating to the direction they needed to take it in. In the next session he had already taken action and had been talking to his channel partners and potential customers. He later then confirmed that they had validated their early ideas from engaging with their customers. While they had validated some aspects he subsequently still spoke of "*intuition and understanding of the customer's world*" as they continued to feel increasingly confident. They continued to take further action and their ideas were getting "*more definite as we are getting more feedback.*" He reached a stage where they were able to define a brief for the software aspects and this requires a detailed brief which is a highly analytic process and so a part of the further validation. He also spoke of allowing both themselves, and their customers time to incubate the ideas so when they actually returned to re-engage them they can have "*a better conversation.*" In the final sessions he again spoke of being more confident in his feeling for the potential for the opportunity and continuing the cycle of feedback. In speaking of the overall process Mr D said;

*"a lot of it is just gut feel, because of that you go, yeah I reckon that will work. Then you go out and ask the questions and not everyone agrees and so you go oh hang on. And we get more specific and it becomes more deliberate."*

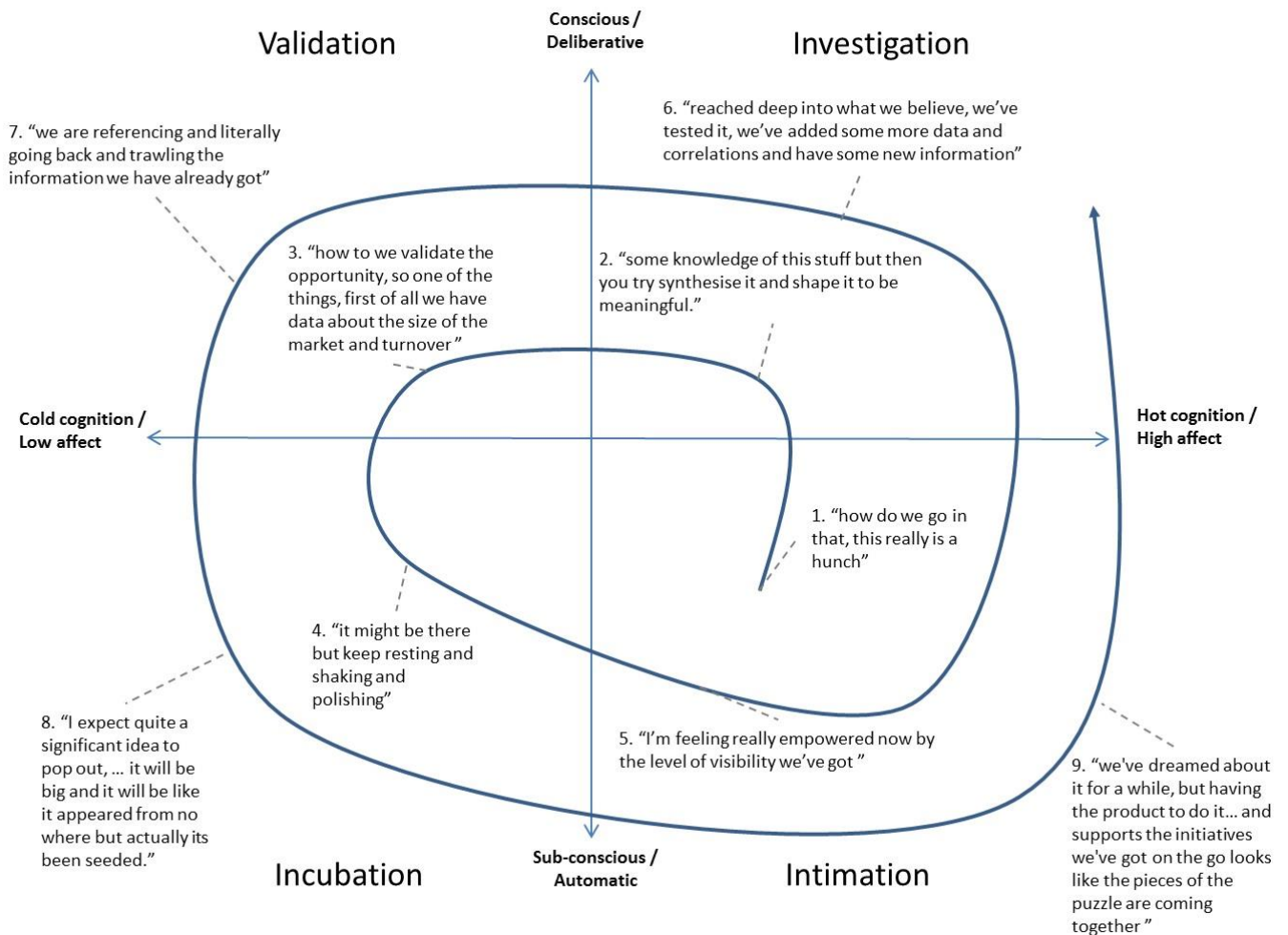


**Figure 5-4. Expanding intimation spiral for Mr D.**

In the case of Mr B, and particularly the specific opportunity relating to what he called the convergent space, he slowly built momentum and at times was happy to not be focussed on it, but let the opportunity emerge over time. As can be seen below in Figure 5-5 he started with the hunch that this area was worthy of exploring. He later described trying to synthesise the information they did have in this area, which involves both system one intuition and system two analysis in the investigation phase. He and others in the organisation also validated the opportunity by analysing the data relating to the market size. The opportunity had gained some momentum up to that point. However following this there was a period where he was more focussed on developing the new channel partnerships and so they



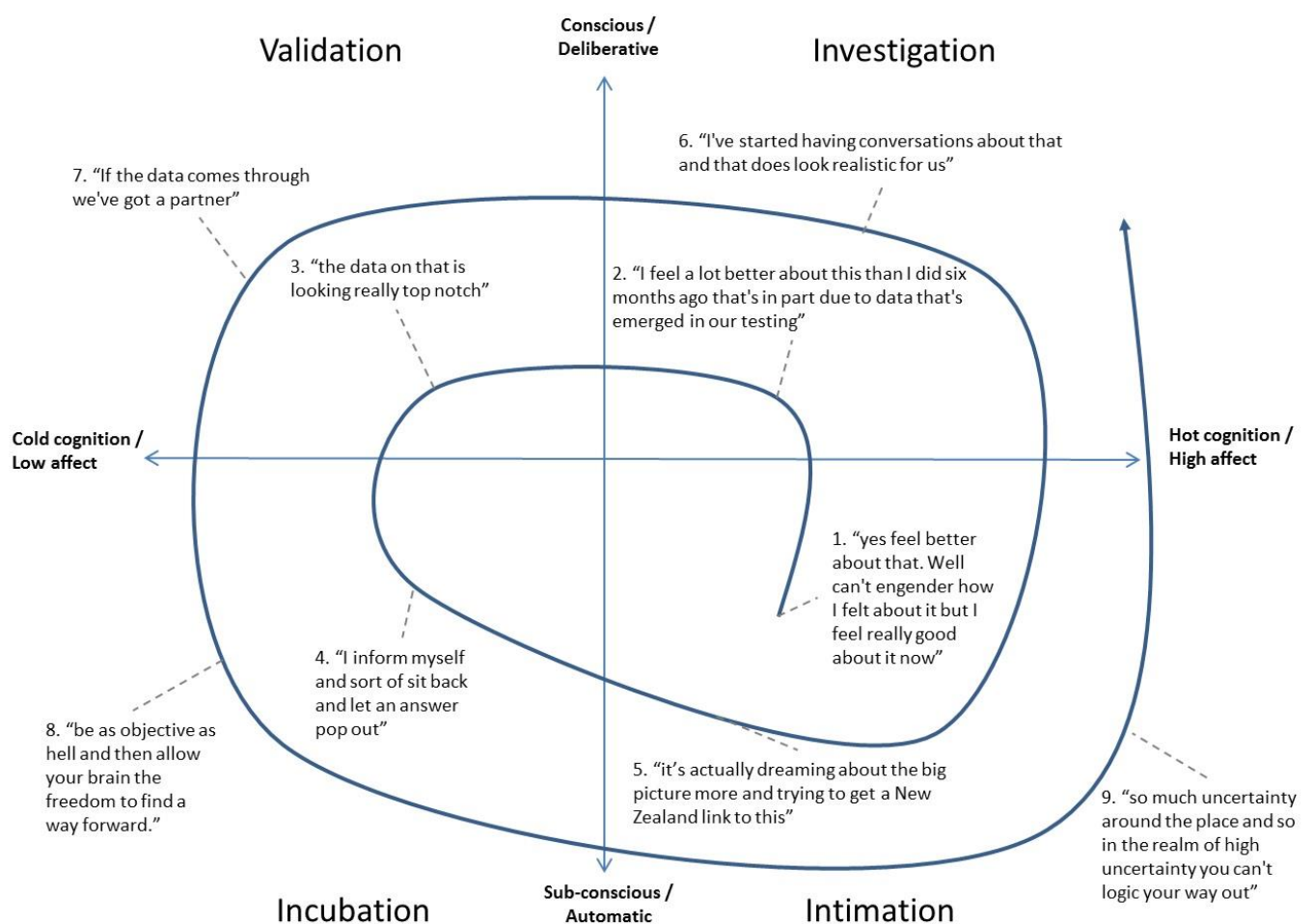
were not actively pursuing the convergent space opportunity. In this incubation phase, he had not discarded the opportunity but described it as resting. In subsequent sessions as a result of visibility on a range of projects in the business he felt “*empowered*” and was able to progress the convergent space again. Moving into the second cycle of investigation he described he and his colleagues testing their beliefs and finding correlations based on new data which again helped them gain momentum. They later used their existing information in a validation phase. Again a clear incubation phase followed where despite there being a significant amount of momentum built up he described that they had seeded the idea and he had high expectations for “*a significant idea to pop out*”. This was incubation at an organisational level, where he was not expecting himself to be the one with the significant idea, but the fact that the organisation had been primed or seeded with the information would mean that someone else would make a positive connection. This did play out and in the final session with Mr B he described one of the sales engineers had made such a connection and coupled with the product being ready he described feeling like “*the pieces of the puzzle are coming together.*”



**Figure 5-5. Expanding intimation spiral for Mr B.**

In the case of Mr S, as shown below in Figure 5-6, we can see how he continually built momentum for the overall opportunity the company is developing. In the first session he described feeling good about the opportunity space, but couldn't necessarily articulate why. In the subsequent session he mentioned feeling even better about it based on test data that had emerged in the investigation phase. Then he was validating their offering with data and the good results continued to build momentum. Mr S was also very happy to collect a lot of information but at certain times also incubate ideas, as he said he liked to *"sit back and let an answer pop out"*. During the fourth session with Mr S the potential opportunity for their business model to change and the potential to create a larger footprint in New Zealand had

become a possibility that he was very excited about but had not yet investigated. In the subsequent sessions he investigated this potential by engaging with people in the market and felt *“it does look realistic.”* The idea then was validated with more data but again following this he deliberately allowed for an incubation period. Ultimately he described the progress and momentum he had built in the highly uncertain situation that carried them forward, but said *“you can’t logic your way out.”*



**Figure 5-6. Expanding intimation spiral for Mr S**

Because of the comparatively short nature of the engagement with Mr C only one cycle was able to be captured, as shown below in Figure 5-7. At the first session he described the planned American expansion as “*having no numbers to support anything yet.*” Subsequently he stated that the ideas were starting to evolve and becoming more refined as he investigated and had engaged with the market. He went on to say they were having to validate it by “*quantifying the intuition.*” At the following session he described how he had been procrastinating as a form of incubation. Following from this he described how things had “*evolved*” and felt they needed to continuing to build momentum to take advantage of the opportunities on offer.

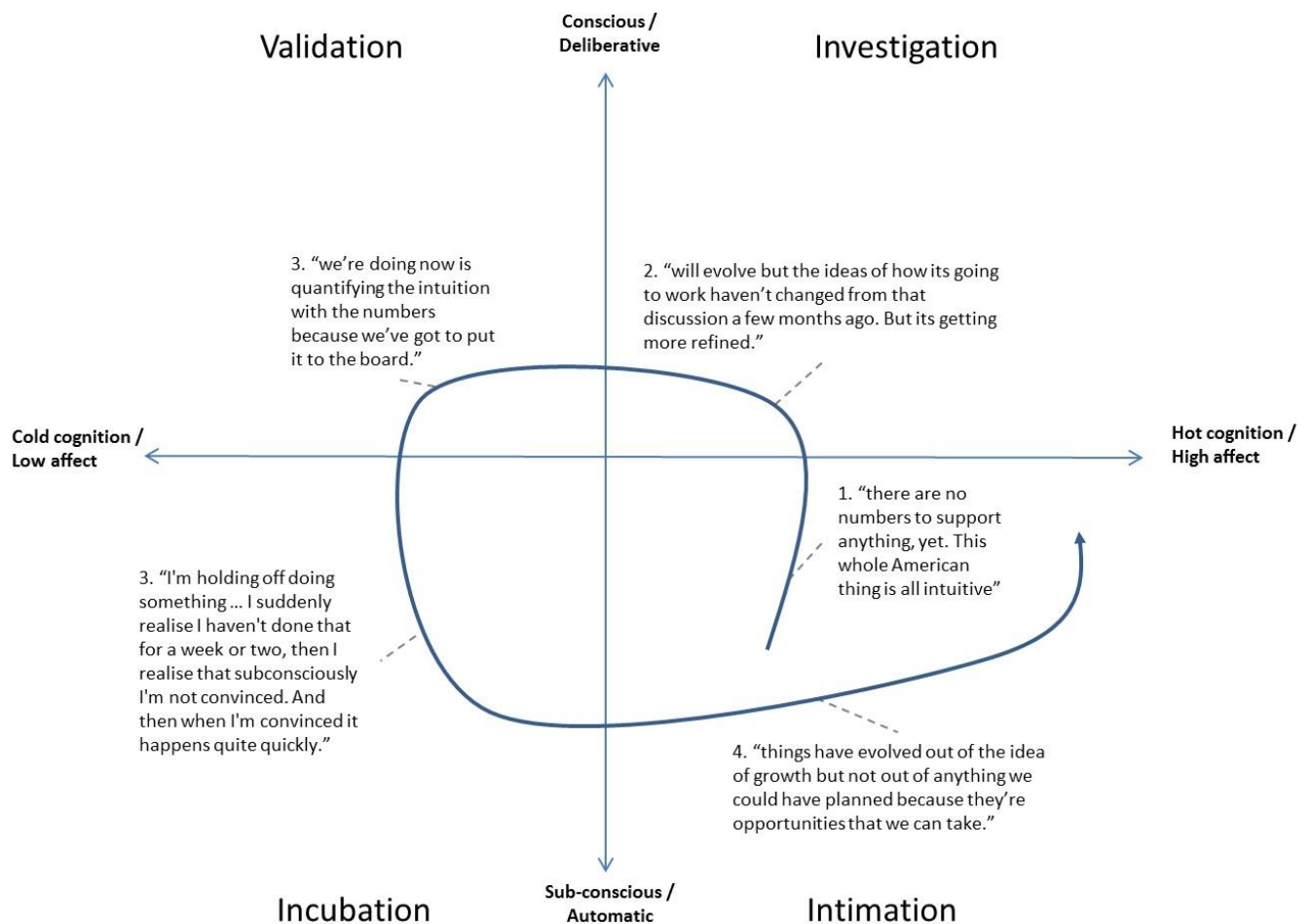
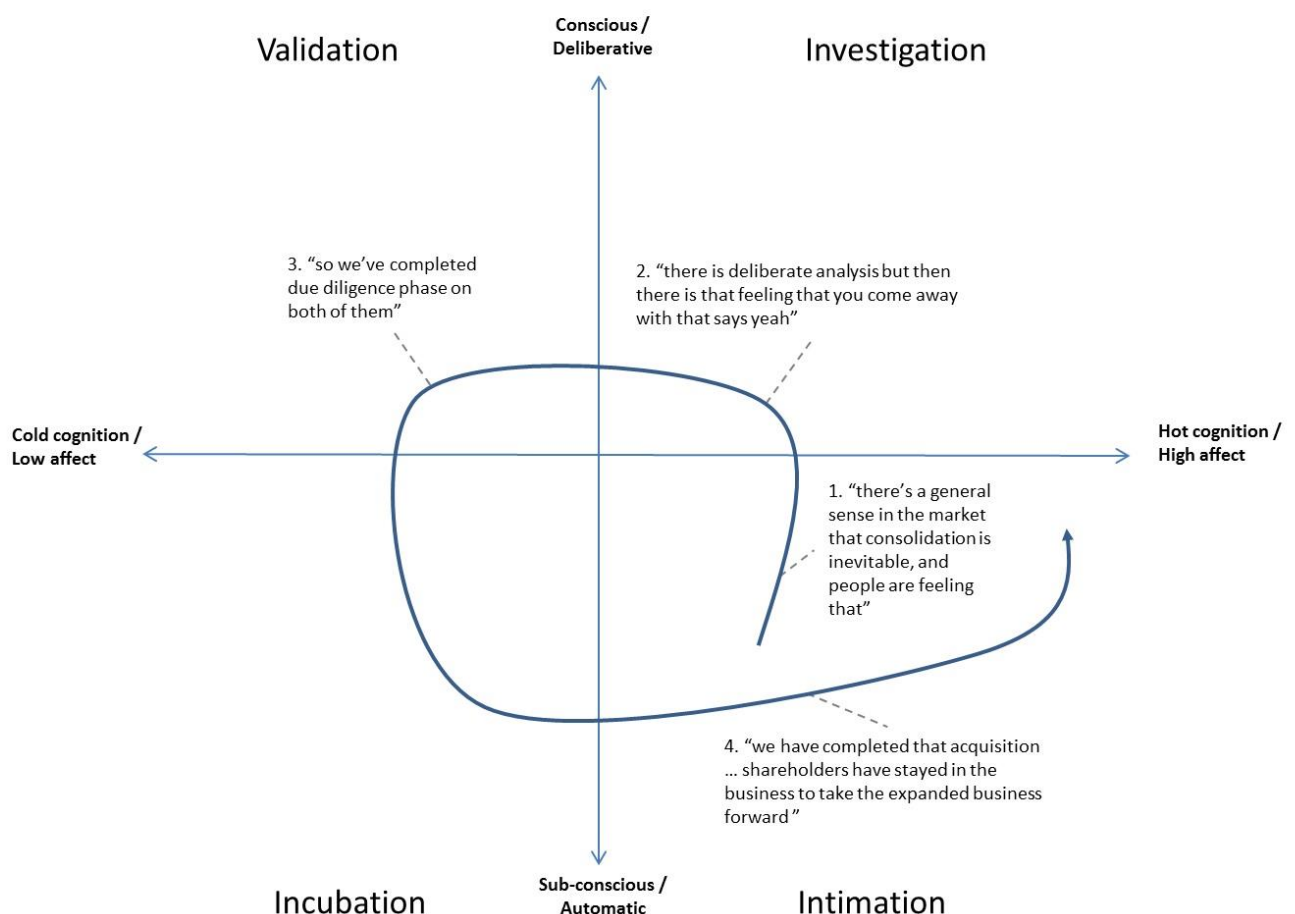


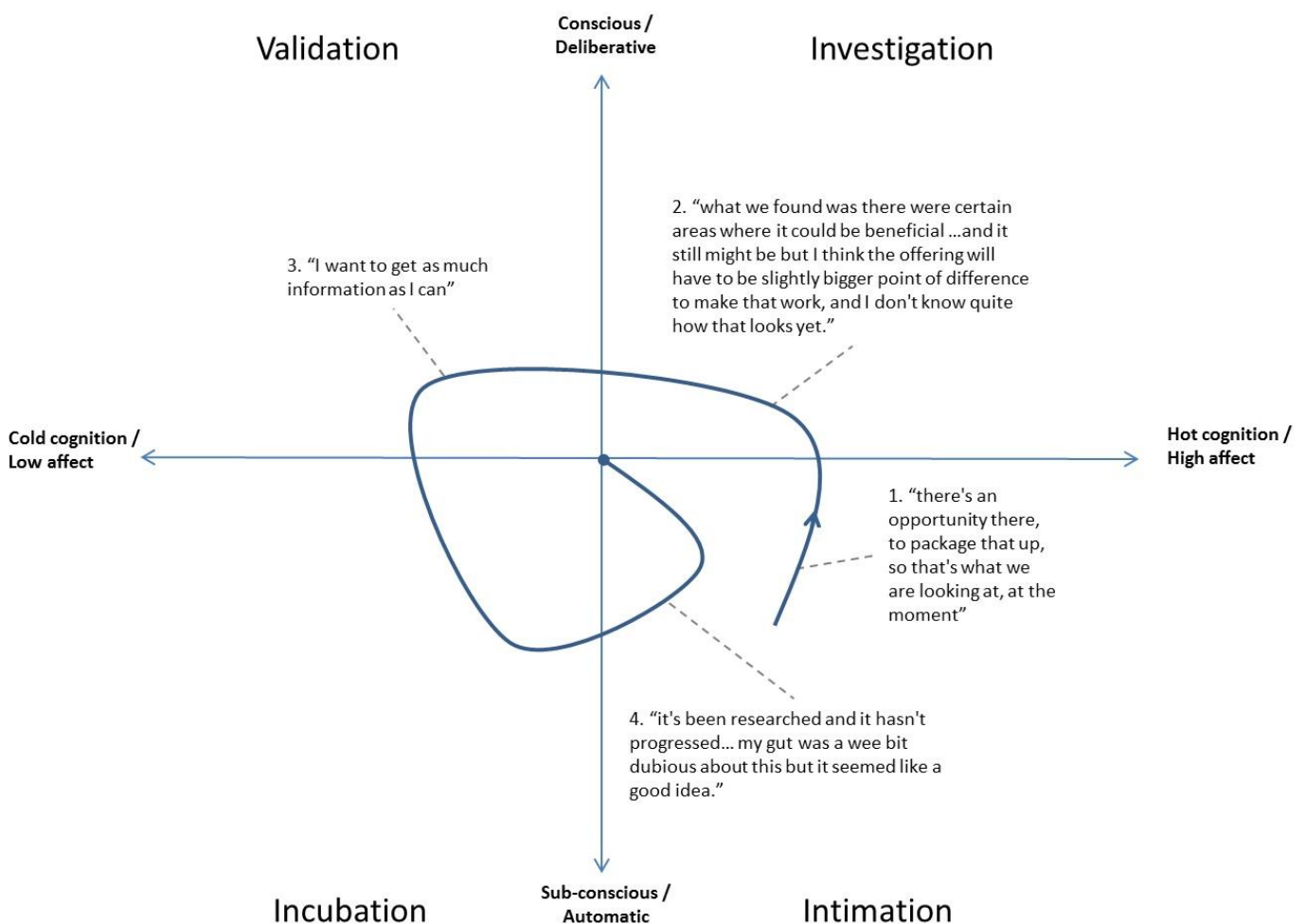
Figure 5-7. Expanding intimation spiral for Mr C.

In the case of Mr M the initial opportunity was the merger and acquisition activity. This took place over the course of the first few sessions and so only one spiral was able to be captured, as shown in Figure 5-8 below. He first described a general feeling that market consolidation was coming in their industry. Later then he described the combination of analysis and feeling in the investigation stage. Due diligence activities followed in the validation phase. There was no particular recognition of an incubation element. He then described how the business would continue to go forward, even though at that stage he had exited the business. Although he would no longer be involved the intimation spiral is shown as continuing to grow and increase in momentum because Mr M described his perception of the business as being expanded and still moving forward.



**Figure 5-8. Expanding intimation spiral for Mr M.**

In Mr G's case one of the opportunities that was uncovered during the sessions, was not progressed. The decreasing spiral is shown below in Figure 5-9. Early on Mr G expressed interest in the potential for a new data security offering, saying, *"there's an opportunity there."* In the next session they had conducted some investigation but it was found to be more difficult than he first thought, as he said, *"... it still might be but I think the offering will have to be slightly bigger"*. The opportunity was losing momentum. He described being quite analytical and wanting as much information as possible. Again there was no reference to incubation and ultimately in the final session when talking about this opportunity he said, *"it's been researched and it hasn't progressed."* They had been unable to build momentum and so the idea had ground to a halt.



**Figure 5-9. Decreasing intimation spiral for Mr G.**

In each of the cases above where the opportunity had been developed and progressed there had been a continual but not necessarily consistent progression around the cycle of intimation, investigation, validation and incubation, as the opportunity built momentum. The driving force that continued to push the cycle was creative action, where action was taken to engage with the market, talk with customers, partners and/or conduct detailed in house testing. As highlighted earlier creative action does not imply a means-end relationship, but rather that as the action was being taken, the meaning and implications were becoming apparent. Reflection on the actions formed the second half of the cycle returning it to the intimation phase to begin again. Similarly with those cases that did not progress, creative action was engaged to progress through the phases, but momentum could not be built or maintained and so the opportunities slowed to the point where it was felt they should be stopped.

As mentioned in each case above the acknowledgement of the role of incubation was not consistent across all participants. In order to examine this aspect more deeply a cross case distinction and analysis (Eisenhardt, 1989a; Miles & Huberman, 1994; Yin, 2009) can be made between the cases of those dealing with software based products as opposed to hardware based products. While all the participants are involved with hi-tech niches this is a potentially interesting distinction because of the ability with software to prototype and test a product idea much quicker than is generally possible with hardware. Mr B, Mr D, Mr S and Mr C are involved with hardware companies, while Mr G, Mr M and Mr A are software focussed. As we might expect acting, and acting quickly, was a high priority for the software group. Mr G described his approach as:

*“...incredibly fluid and agile, you know it’s very much bugger the box and pour the concrete, let’s see what happens. You know so that’s a fascinating sort of culture that we have, you know let’s just try it, let’s just see what happens.”*

However when comparing the codes and comments from the hardware group, while they acknowledge that it takes some time, they too are equally focussed on action in order to test ideas and progress the opportunities. Mr S said:

*“We know what that is now, we know this part performance, so we know. Just before Christmas we met these guys they gave me a number of what to do, and we are 3 months away, it’s a 4 month test, from sending them the data at the end of it, so that’s the issue at the moment.”*

As described earlier, sometimes the speed of being able to get hardware prototypes to the market to test can be a source of frustration, as Mr D stated:

*“We need to just get a prototype out there now. That’s the next stage is just get something out there and not worry about getting it right just give it our best shot.”*

This issue of the extended time it may take to produce a hardware prototype or test results raises the question of the incubation of ideas, which several of the hardware group found to be a valuable part of the process, not only for themselves, but also for their customers and partners, as Mr D said:

*“Two things happened. One we confirmed our beliefs about what the clinicians would see as valuable about it, in the conversations with them. And I think the clinicians have had a bit more time to think about it as to what they would actually use this for, or why would it be valuable and so yes, those two things together have worked quite well.”*

When examining the initial codes, not one of the software group talked about incubating their ideas, other than in one instance, and this was only in feedback to the provisional model. Concerning incubation, Mr M stated:



*“It is very good and not one of my strengths. Something I am growing in. There is merit in that. As long as incubation doesn't turn into procrastination I think you are OK. But it does possibly de-risk you process by incubating for a bit.”*

Incubation is well established as one of the key steps in most models of creative thinking (Claxton, 1997; Hennessey & Amabile, 2010; Sadler-Smith, 2015; Wallas, 1926). The rapid nature of prototyping and testing in the software sector may mean the opportunity for ideas to be incubated, and more novel connections and combinations created as a result, is reduced. Because of the timescales involved no participant was able to follow a complete idea from intimation to investigation to validation and back to intimation without breaking conscious focus, and so there certainly were times when the opportunity was incubated, for all participants. However for the software focussed participants it appears they either did not have the ideas incubated for sufficient periods, or no significant further ideas or feelings emerged from this process, or they did not attribute such feelings to having incubated the ideas. When asked about this aspect in follow up sessions, the software focussed participants did acknowledge the benefit of incubation but that they generally were trying to move quickly and so did not feel they had time for this aspect.

### **5.3 Research participant feedback**

Gathering the feedback on the provisional model in the latter stages of the project was a part of the research design, as described earlier and as recommended by Miles & Huberman (1994) particularly for longitudinal qualitative studies. This was carried out in an effort to improve the validity of findings, as well as keep the participants engaged in the research. The

feedback was asked for in the latter sessions once a preliminary version of the intimation spiral model had been developed and could be used to explain and extend the relevance of the existing static model of strategic cognition (Hodgkinson & Healey, 2011). Being conscious of issues of researcher bias the model was shown to the participants and explained in broad terms in order to not constrain their feedback. Also in order to not influence the earlier gathered data and eliminate any potential confirmation bias this feedback was always conducted at the end of a session after all the existing causal map discussion and repertory grid data collection had concluded. The feedback was also not sought at every subsequent session. Each participant, with the exception of Mr C due to the short nature of his involvement, was asked for feedback on the model on two occasions. Primarily for their own interest and engagement the participants were also provided feedback on their REI scores (Pacini & Epstein, 1999), and some of the triangulation findings from the repertory card sorts, confirming that the majority of instances of intuition discussed were not expert intuition, but creative intuition or foresight (Sinclair, 2011).

Mr D was particularly interested in the model and immediately saw relevance to what they were doing. Note at this time the validation phase was called justification. Mr D said:

*“I think you're right goes through these stages and you get to the justification part and you get to justifying cost internally of what you are prepared to invest... at some point an internal tussle where you just go ah damn it I just believe that's right we'll just do it. Sometimes that's right and sometimes it's just being lazy, you're just being too impatient or you haven't finished the investigation side of it and you are justifying it based on assumptions, your due diligence is too narrow.”*

At a subsequent session when discussing the model again Mr D suggested validation was a better term for that phase, and this was subsequently adopted as a better description of the concept. He said:

*“A word that springs to mind which is something we’ve been talking about an analysis of the whole start up business incubator type process as well and that’s validation... we’ve focussed so much on this end and on investigation... I see this validation thing as a particular weakness in our business planning and processing and we jump over it, we see it as a hassle. Sometimes it’s to do with regulatory compliance, that people view that, look that’s a pain in the arse look we’ll deal with that later.”*

Mr A highlighted the dynamic nature of the model and wondered if there were typical times that people would take in each phase. He said:

*“For different types of industries generally people spend more time not just have more turns or fewer turns but spend more time in a particular phase.”*

This was insightful given the cross case analysis above which revealed the software industry participants, of which Mr A was one, did not utilise the incubation phase when compared with their hardware focussed counterparts. The difference between individuals in different industries offers scope for future research.

Mr S identified with the stages in the model and the need to balance intuition and analysis at different times. He said:

*“Yeah because in the realm of high uncertainty if you think you can do deliberate analysis and it will take you to a sensible end point you are just kidding yourself. But equally if you have got a very clear discernible subject of due diligence if you put your foot on the desk and dream about how things could work, you’ll get taken apart. So you are absolutely right you have got to do both.”*

In terms of reacting to changes in the strategic environment and that may start a new cycle, he said:

*“When things change in the environment it does have an impact on what the business could be so you have to be able to swing through... what does that actually mean for the business.”*

Mr B identified with the various phases and described his own process of working through an opportunity as:

*“So you’ve got a challenge and you don’t quite know what it is so then you start to frame it and explore it. So here you’ve had to construct and what I would do is some kind of map or analysis whatever you’re talking about, then you go and explore it and you come back and work out what you really are on about, and then you ideate a solution create it test it”*

Talking about the shift from positive feelings to hard data, particularly sales, Mr B said:

*“That’s where this one it all sounds a nice story and we are getting positive signals but until somebody lays out some hard cash it’s not done”*

Mr G described how they like to move quickly through the phases and this discussion led to the dynamic nature of the model:

*“I think that’s where it starts, an impression or a gut or a feeling that things need to change or they are changing, and then I’d better have a look at that. Is it a good idea rationalise it justify it. And this bit here happens pretty quick for us”.*

As mentioned earlier Mr M had not referred to incubation in his own process but in looking at the phases he said:

*“As long as incubation doesn’t turn into procrastination I think you are OK. But it does possibly de-risk your process by incubating for a bit.”*

The feedback from the participants has helped abductively shape the model (Dubois & Gadde, 2002; Miles & Huberman, 1994), in particular to confirm the dynamic nature of it. The participants' feedback also helped refine the terminology where validation was suggested and subsequently adopted as a more accurate description for the high analytic/low affect phase that follows investigation.

## **5.4 Intimation spirals summary**

In this chapter the emergent model of intimation spirals was compared and contrasted with similar theories from the fields of knowledge management and organisational learning. It has then been discussed in terms of momentum, and increasing and decreasing intimation spirals from the research cases have been presented. To build and refine the theory the participants feedback was sought and results of this element of the research was discussed.

## 6 He Tangata

*He aha te mea nui o te ao,*

*What is the most important thing in the world?*

*He tangata, he tangata, he tangata.*

*It is the people, it is the people, it is the people.*

— Māori proverb (Te Ahukaramū, 2017)

In the earlier analysis of the research themes, how the participants used their intuition relating to people was one of the key concepts to emerge. In this chapter the first section presents a discussion of similar theories such as metacognition, escalation of commitment and entrepreneurial over-confidence. The second section will then examine how the participants' intimation spirals interact with intimation spirals of others, particularly as they engage in investigation. In the third section the role of confidence in its various forms is examined. The central relationship of confidence with creative action is also discussed in some detail.

### 6.1 Similar theories

Several theories from psychology and entrepreneurship are closely related to intimation spirals and the issues or implications they have for how people interact. The similar theories discussed here are metacognition, confidence, escalation of commitment, and entrepreneurial over-confidence.

Metacognition is described as the knowledge and understanding of your own, along with others, cognitive processes and has four key elements (Flavell, 1979; Haynie & Shepherd, 2009; Tarricone, 2011). The first element is metacognitive knowledge. This describes the extent to which a person is aware of their own but also others cognitive styles, preferences and ways of thinking. This has clear links to the overlap of intimation spirals as described in the following section. The ability of the participants to understand their own cognitive processes helped them understand others and so changed how they acted in order to better advance the opportunity. The second major element is metacognitive experience. This describes the feelings associated with previous cognitive episodes, tasks or problems that may be drawn on to help make sense of a current situation. In dual process terms this element is largely based on system one affect. The third element is goals, or what are the desired outcomes or the reason the situation needs to be understood. The imitation spirals model, in drawing on creative action theory as discussed earlier, implies that the means-end relationships may not be clearly defined as might be assumed by this element (Joas, 1996; MacLean et al., 2015). Goals for particular cognitive episodes may not be apparent until action has been undertaken. The final element is metacognitive strategies. This element relates to the different methods, tools or frameworks an individual may be able to use to approach a problem, and how they select between different approaches.

Kanter (2004) in an extensive study of leaders in businesses, sports teams, not-for-profit organisations, banks and governmental organisations has found that people develop confidence in four areas. First at an emotional level, there is self-confidence. This is described as feelings of positive expectation, high energy and optimism about situations and their own abilities. Secondly, at a behavioural level, there is confidence in others. This is where people have a positive, supportive team oriented attitude and people are collaborative and feel secure. Thirdly, at an organisational level, they have confidence in the system and

the practices, processes or structures in place in the organisation. The organisational routines help foster the collaboration, teamwork and responsibility expected. Finally, at a social level, there is external confidence. This is the external network of stakeholders which provide support. Each of these aspects was seen in the participant's cases and each will be discussed in further detail in section 6.3 below.

Staw and colleagues conducted several studies to better understand the reasons for escalation of commitment and determined that there are two key factors (Staw, 1981). The first is self-justification where a person feels that by continuing to invest in an apparently bad situation they may be able to change the course of the opportunity and in doing so justify their earlier decisions. It is proposed that this is related to the person's self-esteem however in Bandura's theory this is quite different to their self-efficacy (Bandura, 1997). The self-confidence mentioned above would appear to be more closely related to self-efficacy where the confidence in their own ability to develop the opportunity is not necessarily related to their self-esteem. The second factor involved in escalation of commitment is external justification (Staw, 1981). This is where someone feels the need to prove to others that their previous decisions were correct and it is suggested this may even be a stronger driver. This is related to the confidence others have in us, or the confidence we perceive they have in us as mentioned above.

The self-confidence, extending to over-confidence and even hubris of entrepreneurs has been extensively studied (Busenitz & Barney, 1997; Koellinger et al., 2007; Perlow, Okhuysen, & Repping, 2002; Townsend et al., 2010). Two factors heavily influencing the self-confidence of entrepreneurs are their perceived ability to carry out the tasks required and the expectation of the resulting outcomes (Bayon, Vaillant, & Lafuente, 2015). In this area however while self-confidence is dealt with in some detail, the issue of confidence in others,



in the system, and external confidence of others, is not considered. In the biases and heuristics literature the issue of over-confidence is also well studied (Busenitz & Barney, 1997; Kahneman, 2011). However this view of over-confidence tends to be in the context of a long-range forecast or a one off decision, typically based on expert intuition, whereas the intimation spirals are more concerned with ongoing dynamic navigation of an opportunity, stemming from entrepreneurial intuition.

## 6.2 Overlapping intimation spirals

As the participants tried to progress their opportunities by building momentum, one of the common actions they undertook was to engage in investigation with potential customers, or strategic partners such as distributors. This section examines how the intimation spirals overlap for the different parties involved and the implications of this. It is acknowledged here that this is within the limitation of the participants reported perceptions of the other party's reactions. It was not possible to confirm this with the other individuals. Such a study of individual's reporting their individual perceptions of a common opportunity offers potential for future research.

The participants demonstrated a level of meta-cognition (Haynie & Shepherd, 2009) at various stages of the process and in some cases highlighted their own limitations. Mr A, described:

*"I mean just analysing myself maybe I thought unconsciously OK let's just cut a corner and not do that, but without thinking too much about it. But then when the mentor asks me about doing that maybe I have thought about it not consciously but decided not to do it but in hindsight it was a bad idea."*

Mr D spoke of his self-awareness that he was not the best person to continue to drive the opportunity as it entered a more structured phase of development:

*“My own personal feeling at the moment is that it's time for me to hand it off. That I don't fit particularly, I probably do from an advisory role now, but there is a real risk that yeah just a gut feel that as it gets into a more regimented phase that I need to recognize that I'm not good at that and therefore we should get other people involved in it”*

When the participants started engaging with potential customers or strategic partners, each of the customers or partners have their own resistance to the idea to overcome. As Mr A described as one of his key questions for the early opportunity was, *“How can their conservatism be overcome?”* Later when the chat bot opportunity was starting to build some momentum he said:

*“We are moving a lot of effort away from this particular opportunity because there is a lot of inertia in the building industry. Construction is quite conservative and there are also political things, their IT teams are reluctant to do anything not invented here.”*

Mr D described in some detail the effort they went through to understand the real value in their offering from their customer's perspective. He referred to this as:

*“It's very much based on our intuition and understanding of the customer's world. It's empathy. It's that empathy of what their world represents.”*

He also described how they may not initially be able to engage with something new, but over time they better understand it:

*“When you first go to talk to somebody about it, disruptive piece of technology they can't really answer questions on it because they don't know what its relevance is or where does that fit. There's a lot of suspicion around there as well. And then they over time think about it and go well actually yeah. And the next time you go back and ask questions you can*

*actually have a better conversation and get down to more detail and be specific in its answer.”*

Mr B also spoke of trying to understand the customer’s view. He said:

*“So internally you’re reviewing from all of this stuff you’re trying to put yourself in the customers’ shoes, and there could be different reasons for why you think they’re good.”*

Mr C discussed how he felt the customer would perceive a local sales representative rather than someone from outside:

*“So there is a made in America element to it. Yes we want the Stetson hat and the big belt and the cowboy boots and we need it in America coz that’s who they trust.”*

Mr S described how some of their potential partners have access to much more industry data than he does:

*“They’d be right at the hard edge of data analysis. They’d have just so much more information that we would.”*

He also spoke of how they would present information differently to different groups:

*“If we could understand how these guys were going to act we could start working out how to influence what information they get.”*

In some cases as Mr S described that he was aware of the high resistance to their technology from some quarters and adjusting expectations as a result. He said:

*“It’s just not a sexy technology, really is poorly regarded in the investment community. So I think we just have to be realistic about what we can pull off.”*

By trying to empathise with the customer’s perspective, the participants were attempting to take into account the dynamics of their customer’s intimation spirals. They were aware they had to work hard to overcome the resistance that many naturally had to the new opportunity. They also had to work through many phases of education and provide them with time to think about the opportunity. Their expectations and what they could achieve

themselves were tempered by the feedback and perceptions of their customers. Therefore, over time the momentum from the customer's intimation spirals and the participant's intimation spirals became related.

Design thinking is an approach to innovation that places a high emphasis on empathy with users in the early stages of investigation along with continued iteration (Brown, 2008; Martin, 2009). It has been proposed that using this approach is a means of reducing the natural biases that we all bring when investigating opportunities (Liedtka, 2015). One of the significant biases specifically relating to empathy is the egocentric empathy gap (Van Boven, Dunning, & Loewenstein, 2000), where we systematically tend to overestimate the similarity between our own perspective and that of someone else. Further to this, and with direct relevance to the affectual state we may have when exploring a new opportunity, it has been shown that our current emotional state has a significant influence on how we perceive other people's perspective (Van Boven & Loewenstein, 2003). These limitations have led some to start to question the primary focus on empathy and suggest that rational compassion may be a more helpful way of considering other people's position (Bloom, 2017). In terms of the intimation spiral however the implications are that it is important to engage in many cycles of the spiral, as the participants were seen to do. The reason being that in the early stages of the spiral when the individual has some early affect or feelings about the opportunity, the sooner they can take action and investigate, and then validate any findings, the less likely the biases mentioned above will have a major distorting factor. If the opportunity is not explored through action and the individual's intimation increases their own affectual state for too long, then by the time the opportunity is investigated it is more likely that any feedback will be perceived in a more biased manner. This begs the question then, is the spiral a self-fulfilling prophecy? The participant's cases showed that there were instances of increasing spirals, but

also decreasing spirals where opportunities were explored but not progressed, which shows that this is not always a one way progression.

The resistance to the new opportunity are central to models of innovation diffusion where customers are characterised as innovators, early adopters, early and late majority through to laggards depending on their likelihood to take on new ideas, typically new technology (Moore, 1999; Rogers, 1995). However these models tend to take an industry or organisational level view, e.g. describing the proportion of market might be expected to be in each category, and there is little attention given to the individual decision making process that brings this about. An implication of the intimation spiral model is that when the participants start to engage with others, typically in the investigation phase, they are talking with people who may have their own intimation spirals. They have their own resistance to the new idea, which in some cases may mean they do not engage in their own investigation phase and use their own expert intuition in which case they make a swift judgement and so do not enter the spiral at all. However as experienced by the research participants most other parties did not make a swift judgement, presumably because the technology or opportunity was sufficiently new, and/or the parties they engaged with remain open to new opportunities themselves. This implies the other party are hearing about the particular opportunity probably for the first time, and so they are still in their own intimation phase. They have therefore not necessarily engaged in investigation at the same time as those trying to engage with them and so there is a miss-match in the stages of the two individuals' spirals. Many of the participants, as described above, were aware of this process taking some time and so they were prepared to repeatedly engage and develop the credibility and trust required to progress the intimation spirals in their customers. Making reference to the adoption models mentioned above Mr A referred to this as:

*“It’s just this diffusion of innovation that is happening and people are still learning what chat bots are and we just need to be doing a lot of education.”*

Mr D found that he was building momentum himself and with his customers simultaneously over repeated interactions. He said:

*“We confirmed our beliefs about what the clinicians would see as valuable about it, in the conversations with them. And I think the clinicians have had a bit more time to think about it as to what they would actually use this for, or why would it be valuable and so yes, those two things together have worked quite well.”*

He describes the value in his customers having their own “time to think” and progress their own intimation spiral. Mr S talked of allowing potential capital partners to go through a similar process. He said:

*“I assume everybody goes through that. The reason I get out and do capital raising early is that I want other people to allow them to have the time to mull over things and cogitate before they jump.”*

Mr M provided an interesting within case comparison between an acquisition target and an investment opportunity. In the acquisition instance they had developed a relationship over many years and so were confident in each other and there was a level of trust in the information they were providing each other. He said:

*“We have had on our radar for four and a half years, and we’ve had coffees with them off and on so you know so we’re not scary. And it’s a sort of a friendship there, even though we are competitors, they know us and our strengths and weaknesses pretty much so, that’s an easier conversation.”*

Whereas in a later session he talked about an investment opportunity he had been presented with but he did not pursue because:

*“Do I think it’s viable and what confidence do I have in the people and the opportunity itself?... The thing that really put me off it was I just like to think that the people are being fair about it that the risk reward balance is being shared”*

The fact that in the first instance they were able to interact over some time and have time for each of their intimation spirals to progress provided for a more favourable outcome rather than a short term interaction where an intimation spiral was not able to be progressed. Or alternatively he had applied expert intuition based on his own experience and so made the decision immediately eliminating the need or desire for any further investigation.

### **6.3 Confidence four ways.**

A common people related aspect of trying to build momentum for the opportunity was the decision about who to collaborate with. In all cases the participants had some other party, or parties, that they were in some way reliant on to help progress the opportunities. In some cases this was distribution and sales channel partners, in others it was co-development with technical partners or in several instances capital partners. Confidence relating to these strategic decisions was uncovered as a key element that relied on intuition. As introduced earlier, Kanter’s research into confidence highlighted self-confidence, confidence in others, confidence in the organisation and confidence in the external network, each of which needed to be developed in order to progress opportunities (Kanter, 2004). Each of these aspects will be examined in turn in relation to the research cases.

The first aspect of confidence emerging in the process of developing the opportunities, was the self-confidence of the participants in their own ability, and/or their organisations ability, to take advantage of the potential (Kanter, 2004). Mr S said:

*“I think a bit of it is a level of confidence, it’s a bit like seeing all the stepping stones to get across the river versus not knowing there’s a step there but having confidence that we’ll find it if you lean forward. But if you wait till all the stones are there, it’ll be gone.”*

Mr M spoke of levels of confidence developing over time as uncertainty is resolved:

*“We talked about businesses going through a maturity cycle, most of the intuition in my experience happens at the beginning of that cycle. Because you are launching out into something that’s, particularly if it’s a new-ish industry, you know you’re not too confident about how that’s going to play out.”*

After one of their technical partnerships had been put aside, Mr D said:

*“Intuitively I am feeling more confident about almost doing our own thing rather than doing it with the others. Last time I was probably concerned it wasn’t working very well the relationship side of it, and that worried me therefore does this mean that business opportunity we are going to miss out. Now I feel, well actually as that relationship has been pushed aside it’s been a good thing and we just get on and back ourselves, and we believe there is an opportunity therefore we will invest and get on with it”*

Self-confidence was increased or decreased as a result of action and going through the phases of investigation and validation. Mr B spoke about their self-confidence when details were revealed in a competitive situation:

*“The interesting thing there is our confidence has grown, that actually now that we have seen under the hood of our other competitors, we understand about product quality about the processes, we are way ahead.”*

Mr S spoke of his increasing confidence in their ability as a result of their own testing and also the reinforcing confidence of others continuing to engage with them:

*“I am more confident now in a number of factors, one is that we are getting good stuff going on downstairs. Another is that we’ve managed to hook a battery equipment maker”*



There was also information on their intellectual property position that validated his confidence. He described this as:

*“They’ve identified the same set of patents we’d identified as prior art, already given us on all our claims. I’m really confident where we are going to end up on that.”*

Mr D spoke of his increasing confidence because of the feedback from others:

*“I am more confident because we’ve really validated a lot of the ideas we’d thought and we do know who is most likely to see value in it.”*

The second aspect of confidence is the confidence in others (Kanter, 2004). A great deal of the momentum that was built in the opportunities researched was related to the confidence that the participants had in collaborating with other people. The confidence in the ability of the other party to help progress the opportunity was often based on system one feelings and impressions of intangible abilities of others. In the latter sessions with Mr M where he was looking for investment opportunities he said:

*“I think at the end of the day you are backing the people. There are a lot of ideas and products and services but it’s the ability to execute and take it to market that’s key and that’s all about people.”*

On another occasion he said:

*“Part of it is their background and their track record but a lot of it is also about their energy and their ability to instil confidence and inspire, those are intangibles.”*

In several of the sessions with Mr B the focus was on developing new channel partners. He said:

*“It’s never going to be a mathematical formula, it’s not just about size of the business, you’re measuring the passion.”*

Similar to self-confidence, the confidence they had in others was also built over time. It started with an intimation, often of optimism about the potential to work together. While he was trying to find new channel partners Mr B said of one opportunity:

*“I’m pretty confident we’ll be able to do something, I haven’t even met him yet. But when you hear his story and know what they are doing, and you understand what the competition will be... He’s got existing business it could be quite successful.”*

Mr D early on said:

*“What’s the quality of the people? That was really, really important.”*

Then as they engaged with each other they were taking action and moving into an investigation phase with both intuition and analysis of the other parties playing a part. Mr D had several potential technical partners but as he engaged with one group his confidence was decreasing as he started to work with them. He said:

*“They seem to have very rigid idea about how it would proceed... I’m not hugely confident that we’ll get there with them.”*

Mr B spoke of the importance of alignment in this investigation phase. When talking of the increasing confidence he had with his new channel partner he said:

*“The reason we had the confidence to go and do business, we’ve had other companies see us before and we’ve had other partners in the business and it hasn’t worked out, because people didn’t have the same values or aspirations and work styles. So we’ve worked out we are aligned.”*

A validation phase would follow where some hard data and analysis took place in the form of due diligence, or written agreements. Mr M described getting to this phase with the early acquisition:

*“In the process of doing due diligence... when you go to undertake it, you only do it if you are very confident that you want to progress with it if it got to that stage.”*

In Mr A's case, these relationships were not necessarily permanent but viewed as mutually beneficial temporary arrangements:

*“So he has a relationship with this US company and for now we have signed an agreement with him and we are working together.”* (Emphasis added.)

Periods of incubation would also be present where people went back to their own businesses and return to the feeling of confidence in others increasing or decreasing through the cycle.

The third aspect of confidence is the confidence in the system and the organisation (Kanter, 2004). In Kanter's work the organisations tended to be larger where structural issues, described as the system, were a significant aspect. One of the limitations of this research project was that the participant's organisations were all small by international standards and so structural systemic concerns were not a major focus. However, communication in the validation phase was a common aspect that the participants engaged in in order to gain the confidence of the organisation. In particular getting the support and confidence of the board for these strategic initiatives was an important part of the process. Mr D spoke of the questions the board were concerned with at various stages. He said:

*“In terms of answering that question when it's asked in the board room, and my board is asking me what's the proposition and what's the ask? They want to know how much is it going to cost and what's it going to deliver?”*

And later as the project had been developed to some level he said:

*“Our board as you would expect is much more comfortable with the prospect of investing into the project because it's matured, we've done a lot of homework around it, still a fair bit of risk.”*

Mr G described how the board were considering the range of options relating to the new offerings. He said:

*“It circulated around the board and the next board meeting next month there will be another overview on how to take that forward. And whether it’s a big enough thing to spin out of the organization is still up for debate as well. Is it just an offering on the rack card... or is it big enough to push out. And same with the automated marketing we actually looked at do we actually spin that out at some point, we though no we’ll just keep it in there and incubate it for a while and just see how it goes.”*

Mr S often spoke of his communication with the board on the progress and his current thinking:

*“I’d re-written my board papers that I’m sure we are going to get there from here.”*

*“That’s actually my recommendation to our board is that we do that.”*

*“I’ll be talking to the board about we need to get a hold of a business lever and just paint the picture of how it could go really well or really badly depending on their reactions.”*

As mentioned earlier, Mr C spoke of validating the opportunity in order to gain board level buy in:

*“But what we’re doing now is quantifying the intuition with the numbers because we’ve got to put it to the board.”*

These elements of building confidence in the organisation has some parallels with the notion of sensegiving (Gioia & Chittipeddi, 1991). It is proposed that in initiating strategic changes practitioners go through phases of sensemaking or understanding, described as primarily cognitive, followed by sensegiving, or influencing where action is central. In this study however it was found that action was required in order to develop understanding, as suggested by creative action theory (Joas, 1996), and so cannot be distinguished from the sensemaking phases. As highlighted earlier emerging intentionality is one of the core features of creative action (MacLean & MacIntosh, 2012). Action was also required in order to communicate and build support and confidence in the validation stage as seen above.

The fourth aspect of confidence is external confidence (Kanter, 2004). This perceived confidence of others in the opportunity was frequently encountered in the research. For Mr B having the confidence of others and becoming a trusted partner was a key strategic priority. He said:

*“In terms of the need for these big companies they’re developing that need so, they’re going who do I trust? Who do I want to partner with? So they need to know they’ve got good technology, they need to know I think our advantage is that we can offer a partner for them.”*

Mr B also discussed how the other party in a partnership arrangement also were making their decisions influenced by personal factors, as he said:

*“His partner X’s first question was, not what’s the business like, will they accept our proposition or anything like that, it was what’s he like?”* (Name removed.)

Mr M talked about using the validation phase to help build confidence in others. He said:

*“We’ve used Deloittes before we’ve got a good relationship with them, so we’ve just stuck with them really. And part of the reason, we could have done our own financial due diligence to be fair our financial director is a very capable guy, but because we are looking to get private equity investment, we felt having someone like Deloittes do that gave confidence further up the food chain.”*

Mr A also spoke of demonstrating confidence for others:

*“You need to show confidence and show investors some confidence, but you cannot be reckless.”*

The opportunity for Mr S relied on others having confidence in the new technology and the company. He described how once they were able to get the validated information, they would progress those relationships:

*“We’ve now got five companies working with us. I don’t feel pressure on that one. If the data comes through we’ve got a partner.”*

In all participants cases, building confidence in the four ways described was an important part of the opportunity development process. The reason for this becomes apparent if we return to examine closely some of the language used by the participants and in particular what comes from their confidence:

*“confident we’ll be able to do something” – Mr B*

*“confidence to go and do business” – Mr B*

*“confident that you want to progress” – Mr M*

*“confidence that we’ll find it” – Mr S*

*“confident about almost doing our own thing” – Mr D*

*“confident where we are going to end up” – Mr S*

*“confidence in what we are doing” – Mr A*

From this we can see that action is very closely related to confidence. In each case when describing their increased confidence they also speak of being able to do something as a result. Conversely, when there is decreasing confidence, the sense of urgency for action is decreased.

*“rigid idea about how it would proceed... I’m not hugely confident that we’ll get there” – Mr D*

The link between action and confidence is also apparent in Bandura’s theory of self-efficacy (Bandura, 1997) and subsequent social cognitive theory (Bandura, 2001). As discussed in the literature review, self-efficacy refers to an individual’s belief in his or her own ability to be successful in a given situation. The theory describes how internal factors influence, and are influenced by, behaviour and the external environmental. In his social

cognitive theory Bandura goes beyond individual self-efficacy to also discuss the role of collective and social efficacy (Bandura, 2001). Similar to confidence in others and external confidence (Kanter, 2004) but also linking to action, these other levels of efficacy are described as being determined by the beliefs and actions of those involved.

As described previously, interactive social identity formation is one of the three key foundations of creative action (Joas, 1996; MacLean et al., 2015). Mead, one of the founders of pragmatism, described the notion of role-taking where the image we project of ourselves depends on the social interaction we expect to take place and the results of which we internalise thereby developing and refining our own self-image (Joas, 1996; Simpson, 2009). The cycle of action and reflection informs our self-image of which confidence is a part. Creative action was at the core of the social interactions the participants undertook and this shows how essential interactive identity formation was to the opportunity development process. As shown in Figure 6-1 below, the actions of the participants and the reciprocal actions of others built confidence across all four areas which helped define the actual nature of the opportunity and the social identity of those involved. In keeping with one of the other fundamentals of creative action, emerging intentionality (Joas, 1996; MacLean et al., 2015), this actually occurred in the process of taking action and in fact could not have been developed without acting.



**Figure 6-1. The relationships of confidence and creative action**

Examining the four types of confidence and their relationship with creative action, as shown above in Figure 6-1, uncovers their close inter-dependence. Firstly, our self-confidence allows us to take action. For example, we need to feel confident enough in the opportunity in order to present to an investor, potential partner or customer. However, if self-confidence comes from action, this begs the question, how do we take action in the first place? This may be the reason for small steps in the initial phases of investigation and the building of momentum were seen as an essential aspect of developing the opportunity. The first action we have sufficient self-confidence to take based on previous experience. This allows us to investigate and build confidence in order to take subsequent further action. Secondly, the confidence we have in others is based on the actions we have seen from them and their alignment with our expectations. For example, if someone demonstrates competence in dealing with a certain situation then we are more confident in their abilities. This was seen particularly when new relationships were being established and actions confirm on-paper credentials. Thirdly, the confidence we have in the organisation is based on



the interactions that we have when we take action. By taking action to communicate and build internal support, such as getting board level buy in, builds confidence in the organisation. Finally, when the external confidence others have in us allows them to act, this in turn influences our self-confidence and shapes our social identity. Such as when an investor partner or customer is confident enough, or not, to invest in an opportunity, this affects our own self-confidence.

## **6.4 He Tangata summary**

In this chapter the implications of intimation spirals as they relate to people have been discussed. Similar theories of metacognition, escalation of commitment and entrepreneurial over-confidence were discussed in terms of similarities and differences with intimation spirals.

The implications of overlapping intimation spirals were then examined which mean that when engaging with other people in an effort to investigate or validate an opportunity, the other party are typically not at the same stage in the spiral, most likely intimation, and so will react in different ways. During the study those participants who took the time to repeatedly visit customers were able to see how the thinking in others progress over time and so more valuable interactions resulted.

Finally, the issue of self-confidence, confidence in others, confidence in the organisation, and external confidence (Kanter, 2004) was examined in some detail. Creative action is proposed as the means by which the different types of confidence are increased or decreased as they interact through action.

## 7 Strategic Timing

One of the overarching common themes from the research is the participants' use of intuition in judgments about time, relating to their strategic opportunities. In this chapter the first section compares and contrasts the existing literature relating to temporal aspects of strategy. The second section then describes and discusses the themes relating to the participants' judgements about timing of external factors relating to their opportunities. The analogy of a window is often used to characterise the temporal limitations of a potential opportunity (Busenitz & Barney, 1997; Mitchell & Shepherd, 2010; Perlow et al., 2002) and will also be adopted here. The third section will examine their temporal perceptions of internal capabilities as they relate to their opportunities. The fourth section discusses the balancing of the external and internal views and the temporal structures employed by the participants in practice (Orlikowski & Yates, 2002).

### 7.1 Similar theories

Time itself has been a subject of many organisational studies. The focus of much research to date has been the debate between the linear objective concept of clock time, and the social and subjective concepts of time such as event time and cyclical time (Ancona, Okhuysen, & Perlow, 2001; Crossan, Cunha, Vera, & Cunha, 2005; H. Lee & Liebenau, 1999). Economist George Shackle proposed that there is dynamic time which incorporates events as we experience them, but there is also imaginary time that relates to how we reflect on the past and can create new expectations relating to the future (Shackle, 1990). In line with the pragmatic foundations of this research and the inherent suspicion of dualities (Farjoun et al., 2015), a pragmatic practice perspective on time has been suggested as a means of

handling these dichotomies by focussing on the practices and actions that reflect and affect concepts of time in an organisation (Orlikowski & Yates, 2002). As introduced previously the pragmatic perspective, coming from transactional realism, sees the world as in a constant state of change over time (Hall, 2013) and cyclic processes are of particular interest (Farjoun et al., 2015). Further to this the strategy as practice perspective is well placed to examine temporal issues relating to strategy formation, adaption and adoption (Jarzabkowski, 2004; Kaplan & Orlikowski, 2013; Regnér, 2008).

Kaplan and Orlikowski created a detailed model of a strategic decision making process with what they describe as temporal work as a core feature (Kaplan & Orlikowski, 2013). Based on their grounded theory research in a large organisation they identified that strategic sensemaking of a new event or changing environment consisted of reimagining the future, rethinking the past and reconsidering the present. Creating a new strategy involved linking these temporal elements in a coherent, plausible and acceptable fashion. If it was well articulated this could be accepted by the relevant stakeholders, or if not the cycle repeated. This model sheds light on the cyclic nature of adaptive strategic decision making, and the considerations of past, present and future which were undertaken by the strategists involved. However it makes no attempt to describe the temporal aspects of this cyclic process itself and the influence that may have had on the dynamics involved. This has been dealt with in other research as described previously (Perlow et al., 2002).

Milliken (1987) has proposed three types of strategic uncertainty that an organisation may encounter, each of which has a temporal aspect. The first of these is state uncertainty where the environmental factors are not known, or are unpredictable, making for an uncertain future. The second is effect uncertainty where the external factors may be known, but the effect they will have, or when it will impact, is not. Finally, there is response uncertainty,

where the resulting actions available to the organisation are unclear (Milliken, 1987). Some examples of each type of Milliken's uncertainty were uncovered in the research and will be discussed in the sections which follow.

Mitchell and Shepherd examined how an entrepreneur's image of their own vulnerability and capabilities, coupled with their image of the opportunity affects their decision to take action (Mitchell & Shepherd, 2010). On the external perspective they found that wide time windows of opportunity, that also have a broad number of options, were most likely to promote action. They also considered some internal perspectives to the opportunity perception with self-images of vulnerability and capability being examined. They found that vulnerability, in particular fear of failure, affects how entrepreneurs view an opportunity. A higher fear of failure was found to increase the internal focus such as how close the opportunity was to existing knowledge in the organisation, and have less focus on the range of potential opportunities. They also found that internal perceptions of capability had a significant effect on the perception of an opportunity. However, their research was a quantitative experiment in a lab based environment with a one off investment decision, rather than an ongoing process of building momentum in an opportunity, or not.

## **7.2 Looking out the window of opportunity**

When the research participants were making sense of their external strategic environment there were three timing related aspects that were of common concern. The first of these sub-themes was the adoption rate of the new idea in the market. In Mr A's case when he was progressing the new chat-bot opportunity there was an education phase that had to be

undertaken with the potential customers, as was referred to in previous chapters. The length of time this was taking was of significant concern for Mr A, as he describes:

*“We are making progress along all these lines but this project is quite slow and the sales cycle is somewhat unexpectedly very, very slow. And I mean people come to meetings they really spend their time but to take it through the organisation is taking a lot of time.”*

Mr D described that as they engaged with customers in order to understand the opportunity, this also created some level of expectations from the customers, which in turn introduces time pressure. As he said:

*“We’ve raised interest with customers and people already so we need to be careful we tell them it’s been a flop it’s been problem and move on, we can get away with that, but if we’re intending to go in with a product then we need to get on with it.”*

In a subsequent session he went on to describe the detail of this:

*“But now in terms of the timing, the pressure is on us to develop a piece of software to front end it because that will tease out what the clinicians are actually looking for.”*

Mr G felt that the local market was slower to take up new technology than overseas markets. He described this as:

*“Sometimes when you see the trends overseas we pick them up early and get excited but it takes a wee while for things to catch up here.”*

The second sub-theme relating to timing in the strategic environment was often the control of when events were happening was in the hands other parties, and was difficult to influence. Mr B described the timeframes for progressing some opportunities as being controlled by the large organisations that are his strategic targets. He stated:

*“Some of the biggest partners are you know they dictate the time, it’s got to be ready in their evolution.”*

He went on to describe what he felt were some of the reasons behind this:

*“Finding it really hard to break into them because you can't find a decision maker because they've got different drivers, but one day the time will be right, or you will find an individual ... you have to wait patiently ... it's years in the making and its according to their timetable.”*

Mr M also spoke of being ready when an acquisition opportunity does present itself and it can be with a very narrow window of opportunity. He said:

*“They're the sort of deals that don't sit around forever. You know there's a window of opportunity when they come on, they don't always even come on to the market.”*

Mr M did acknowledge there was sometimes a serendipitous element to how the timing eventuated, but that you needed some positive environmental factors to support it. He described this as:

*“You know it just came along at the right time. One of those interesting things in life how timing and opportunity, sometimes they work out sometimes they don't, you do need a tail wind I think.”*

Mr S spoke of the significance of right timing when approaching capital partners for fundraising. His perception was of the capital markets being fickle and beyond his control so he was going to the market earlier than he actually needed to. He used this analogy:

*“Part of my reason for timing this thing is that we don't want to get caught the last in the line for punch when somebody pulls the bowl.”*

Mr G also described needing to at least investigate the opportunity before it was too late, and someone else develops the opportunity first. He said:

*“You've really got to get into it otherwise you'll miss out completely”*

The third sub-theme relating to timing in the external environment was the time/risk/reward profile of the opportunity. In one of his early opportunity investigations, Mr A described this as:

*“The opportunity profile will be something like this, so you get to a smaller financial reward but you get there faster. So that’s why it’s important to draw some timelines”*

This was always a concern for Mr M when assessing investment opportunities. He needed to feel there was a balance between how far advanced the opportunity was and the potential benefits to be gained. Of one investment he made he described this as:

*“I felt it was still at a stage of development that yes there was proven that there was an opportunity here.”*

Mr D also spoke of the value of the opportunity being dependant on the timeframe involved. He said:

*“Interesting when it comes to timeframe and urgency, because that’s part of that, you know is it two years? If it’s two years it’ll have lower value for us, so if the answers here are positive, then this is probably relatively high, so we need to get it out in the marketplace fast.”*

Mr B also spoke of the benefit of slowing down sometimes because the consequence of a bad decision, in this case relating to alignment with a new potential channel partner, would have long lasting impact. He said:

*“It was interesting they first took off they were quite quick and urgent because things change in the market place and we were going, if you want to talk about this and revisited how we were several times. And they said do you not believe us, and you tell your story and if it’s not right we are all in for a bucket load of pain so sorry if it’s going slow but actually this is the most fundamental question and they respected and came on with it.”*

### 7.3 Reflections in the window of opportunity

Within the overall theme of timing and deciding when to take action, the participant's perceptions of the internal capabilities of their organisations were also an important consideration. Three sub-themes became apparent within this internal reflection on the window of opportunity. The first of these was the perception of organisational readiness. As previously mentioned, Mr M described the intuitive assessment of the organisation's ability to take on an acquisition:

*"It is at a high level of intuition as to when is the right time to do this, and part of it is our own maturity as an organisation as well. Can we, you know one of the ways we kill a weed sometimes is by giving it a growth hormone. You know it grows so rapidly that it kills its resources and dies and I think there's a lot of you have to be at a certain stage of maturity in your business both revenue wise but also people skills wise before you can undertake acquisitions and not have them actually destroy you. So that's an intuitive thing, well it's analytical too but there's a certain sense that yes we could do this and it wouldn't kill us"*

He also discussed the optimal time in order to get the most benefit from an acquisition:

*"I think if you attempt it too soon, you are not going to derive the scale of benefit you're going to get because the companies are too small, if you leave it too late, heaven forbid. Well you become a target for acquisition basically. And so you are far better to be in control than not in these sorts of situations"*

Mr B when discussing the readiness of his organisation as having changed over time and he felt they were now better placed to take advantage. He said:

*"Now customers are looking to change so now the timing is kind of right for that and in fact timing is right for us. But the other thing we would have underdone four years ago was actually we'd stepped out and we weren't really ready."*



He also described the benefit of playing to their existing strengths in order to take advantage of new customer opportunities:

*“These guys are also really good for identifying what might be next, so whilst the opportunities with X or Y don’t come along all the time, and they have eventuated and we’re running back to now doing what we’re good at.”* (Company names removed.)

Mr A when developing the chat-bot start-up opportunity was aware of their limited capacity to take on multiple projects. He said:

*“Let’s say something materializes in the next month or next year with one of those companies like A and then with B we need to have one big decision. Can we afford to do two things at the one time. My gut feeling, intuition tells me probably not.”* (Company names removed.)

The second sub-theme to the internal view of the opportunity was the opportunity costs. With limited resources what is the best use of them at the current moment? For Mr A in particular when developing the chat-bot start-up this was an active debate. He described it as:

*“That’s the choices we make every day. How much effort do we put into improving our development environment? OK if we do it and broken down by day can we actually get a return on that in the next couple of weeks, if we don’t get a return in the next couple of weeks, if we don’t get an ability to do stuff quicker then we’re not doing it. It’s almost like you need to dig a trench and you have spades. And you also want to buy an excavator. Can you afford to buy an excavator? No. Can you build an excavator? Yes we can, but you will have to stop digging the trench.”*

Mr B at one point had decided to not pursue the convergent space opportunity so actively. The reason for this was:

*“That was really informed by a gut feel that what we’re able to chug through and get through in the business um maybe we were taking on too much”*

He was aware that it would slow the development of the opportunity in the new area but felt the consolidation was necessary at that time. He said:

*“Selling more of what we’ve got now and it fits our model, so that actually takes a wee bit of time and resource away from exploring the convergent space”*

The third sub-theme within the internal view of the opportunity was the desire to move fast. As Mr C said most succinctly:

*“So what are we not doing? We’re not doing it fast enough”*

When discussing the reasons behind this he explained:

*“In terms of the timing, it’s an interesting one again because the timing becomes holistic. Because you’ve done your analysis, you’ve done the factual side of things and then I’m comfortable with the analysis and the application of it. And implementation for me then goes back to my normal way which is, right how am I going to do it intuitively, right let’s get on with it boom boom.”*

Mr A also spoke of needing to move quickly and not becoming stuck in analysis mode, as he said:

*“The research phase must be done but at some point it becomes a waste of time because you will never have all stars aligned, you need to have some stars aligned.”*

He also spoke of needing to make decisions quicker and so being forced to rely on intuition more often than in the past:

*“Because you can have an intuitive feeling but do you actually make a decision or take action and I guess in my personal case I am probably not more or less intuitive than I was in the past, but I am now for example forced to deliberate less because decisions need to be made faster.”*

Mr G spoke of creating artificial deadlines as a means of creating urgency:

*“Sometimes you wonder you are never quite there but if you force a date on it you have to.”*

Mr D was concerned with the ability to stay flexible as the opportunity became more regimented:

*“The ability to stay agile through this is going to be really important.”*

Mr B also described the urgency that was needed with their channel partner strategy:

*“The vision is how do we replicate that around the world quickly, because our competitors are losing that know-how and these people I just described and their ability to do it, it will take them a long time to rebuild it.”*

## **7.4 The strategic window**

How the participants viewed the balance of external and internal temporal aspects of the opportunity had a significant influence on their strategic options. Mr B spoke of the balance of analysis and intuition that was required when making judgements about the timing in the market. He described this as:

*“All of that kind of stuff about the timing and what’s going on in market and some of the problems he’s got is a feel, so that’s the feeling. So we’ve analysed it but it’s not like, we’ve got a proposition 2000 dollars a panel we can do it for 1500. So it’s a combination of those things.”*

He also mentioned how the product offering, customer’s business requirements and timing all have to come together, as he said:

*“What we’ve seen is not only a product, but it’s a business need, it’s a timing in the market.”*

Each of the participants were located in organisations with a different strategic orientation along the deliberate/emergent strategic spectrum (Mintzberg & Waters, 1985). For the purposes of further cross case comparison (Eisenhardt, 1989a; Miles & Huberman, 1994) these are divided into three common strategic orientations of entrepreneurial, adaptive, and planning (Mintzberg, 1973). It is acknowledged that there are not necessarily clear and exclusive distinctions between these orientations, and that was certainly the case for the participants' organisations. However while there may be some cross over, particularly in the entrepreneurial and adaptive orientation, there were dominant features associated with each type that was broadly representative for the purposes of comparison.

The entrepreneurial orientation, characterised by very uncertain conditions, but highly adaptable and heavily influenced by a leader (Mintzberg, 1973; Mintzberg & Waters, 1985), was seen most notably in the case of Mr A and Mr M. In terms of timeframe Mr A's start-up opportunity was forced to be very short term focussed by virtue of their lack of resources. Mr A said:

*"Quite frankly right now it's a matter of survival. Because we are very much short on cash. And, if we don't find investment in the next three to six months, and if we don't find paying customers then probably we have to close. Which wouldn't be a good thing but that's the nature of start-ups."*

Mr M spoke of the ability and desire to act on new opportunities as they arose. He was highly motivated to act quickly in such conditions, as he said:

*"It is a call to action, when you see it, you think I've got to do something here."*

In the previous sections we have seen that the customers' adoption rate of new ideas was found to be a key consideration relating to the external environment. This is particularly for entrepreneurial orientations, such as in the case of Mr A and Mr M, because of the need to

generate quick cashflow from new customers. This was coupled with the consideration of internal opportunity costs and where the limited resources should be best deployed.

The adaptive strategic approach is characterised by a known but changing environment, an iterative approach to change and an inductive approach to strategic decisions (Mintzberg, 1973; Regnér, 2003). This was seen in the organisations and outlook of Mr D and Mr G in particular. Mr D spoke of the strategic aspects of the decisions to enter the new space. He contrasted the strategic decisions relating to the direction with the management decisions associated with how to implement the direction. He said:

*“In the process it feels like that this is almost a timeframe as well. I’m using those words of going back here, this was when we were thinking strategically and trying to decide on what it was we were looking at and where we were going to go. Those are very much my definitions for myself of strategic planning, of what are we, and where are we going? This is getting into the management end of things which is how are we going to get there.”*

He also described in the latter stages how when they were engaging with a strategic partner they would sacrifice some of the speed they were used to in order to gain some other benefits. He described this situation as:

*“In some ways what it means is it will slow things down, but I think I’m not diss-ing them entirely in that they will bring some really good robust research to it, obviously some funding but more importantly they can pull things together and apply some pressure to some of these other companies. So it’s interesting in terms of time frame and urgency, that is something we are stepping back a wee bit from it.”*

As discussed previously when Mr G was talking about his organisation’s approach to new ideas said:

*“At this level, holistic level incredibly fluid and agile you know it’s very much ah bugger the box and pour the concrete, let’s see what happens, you know so that’s a*

*fascinating sort of culture that we have, you know let's just try it, let's just see what happens."*

As discussed in the previous sections the desire to have rapid cycles of engagement with the market to test and refine ideas, is most apparent in this group. There is also the consideration of the time/risk/reward profile for a particular opportunity.

The planning approach to strategic position is characterised by a more mature environment, a more structured longer term plan and deductive strategic decision making (Mintzberg, 1973; Mintzberg & Waters, 1985; Regnér, 2003). This was seen most prominently in the cases of Mr B, Mr S and Mr C. When discussing the new opportunity space Mr B would often refer back to its place in the bigger long term picture for the organisation. He spoke of:

*"When is the right time to do what... we want to dream big and that's why we got into it but let's just make sure the foundation is there."* He was also clear from the early stages of the opportunity about the ability to reproduce the approach throughout the organisation. He said:

*"Thinking about where we were, taking on these activities... was really because we felt we were ready. Whilst it wasn't quite there it was a bit of an intuitive act I suppose and the next thing for us. What we're doing at the moment is adding distributors and mapping out our strategic planning requires pretty early on thought about how we're going to replicate this thing."*

Mr B spoke of the strategic planning they were going to undertake and how the information they had uncovered from their investigations in the market would feed up into that. He said:

*"We're about to with the board do a strategic, a detailed three year plan rather than just an annual plan. And because where we've got to as I described before with the visibility*

*of information and insights into the marketing and a couple of stepping stones with X and these other guys we are going to be able to map that out.” (Company name removed.)*

Mr S talked about his longer term view not coinciding with some shareholders’ perspective and so he was having to re-evaluate their options as a result. He said:

*“So we’ve got to work through all of this stuff and part of it is that I sense a degree of, we’ve got some shareholders that have been there for four years now and they are probably want to see a path to getting out in the next two years, whereas I’ve had in my mind 2020 time frame.”*

The consideration of external timing that was beyond the direct control of the organisation, as discussed in the earlier section, was of most significance for this planning orientation. Coupled with this was the focus on internal readiness and building the capabilities to take advantage of the opportunities when the time was right.

Table 7-1 below outlines the primary internal and external temporal factors relating to an opportunity for the entrepreneurial, adaptive and planning oriented organisations as discussed above. In terms of Milliken’s (1987) types of uncertainty introduced earlier, adoption rate, reward profile and external control are primarily state uncertainties in that they are unpredictable external environmental factors. Opportunity cost, need for speed and organisational readiness are largely response uncertainties because they are related to the internal actions available to the organisation. Effect uncertainty is related to the tension between each pair, as described in the strategic window section above because even if either the internal or external factor is known, the effect on the other factor may not be. The tensions between the internal and external temporal factors will be examined in more detail for each orientation.

Strategic orientation	Primary external temporal factor	Primary internal temporal factor	Example cases
<i>Entrepreneurial</i>	Adoption rate	Opportunity cost	Mr A, Mr M
<i>Adaptive</i>	Reward profile	Need for speed	Mr D, Mr G
<i>Planning</i>	Control of timing	Organisational readiness	Mr B, Mr S, Mr C

**Table 7-1. Strategic orientation and major temporal considerations**

For strategists in organisations with entrepreneurial strategic orientation, making judgements about the allocation of limited resources needed to be balanced with where it can have the most significant impact. In terms of impact, the practitioners were making ongoing assessments of the rate of adoption of the new idea. The dynamics of innovation adoption have been well researched (Christensen, 1997; Moore, 1999; Rogers, 1995). However, it is one thing to look back and identify the different customer characteristics, ranging from early adopters through to laggards, after the event, and quite another thing to predict how fast the diffusion across those groups will be at the outset, if it takes place at all. There is very little that can be done to reliably forecast the rate of adoption because the past is no reliable predictor of the future in this instance (Christensen, 1997; Kahneman, 2011). So while the adoption rate has a significant impact, particularly on an entrepreneurial organisation, analysis will not help and the role of entrepreneurial intuition is significant for the strategic practitioners engaging with the market. The practice of intimation spirals to build momentum helped the practitioners to assess the rate of adoption and make small discoveries along the way (McGrath, 2010). As discussed previously by taking action practitioners develop understanding in the process (Joas, 1996). Note this is very different to using expert intuition to make forecasts based on previous experience, which typically leads to poor outcomes (Kahneman, 2011; C. C. Miller & Ireland, 2005). In terms of limited resource allocation and the opportunity cost, the current resources are perhaps more quantifiable but again there is a



large element of entrepreneurial intuition to assess if the impact of deploying them elsewhere will be any more significant.

For strategists in organisations with an adaptive strategic orientation there was often the internal sense of urgency in their decision making and action (Eisenhardt, 1989b; Perlow et al., 2002). The use of intuition has previously been found to be an antecedent of rapid strategic decision making (Wally & Baum, 1994). The practice of urgent strategic decision making can be productive if this encourages greater confidence in the actions to be undertaken (Eisenhardt, 1989b). As discussed in the previous chapter, confidence is a significant factor in determining how an opportunity is developed. But urgency can be highly detrimental if self-reinforcing factors lead to out of control acceleration where ultimately the quality of decisions is reduced as a result of haste (Perlow et al., 2002). The need for speed should be balanced with the external reward profile. That is, are there significantly greater rewards to be had because of acting quickly, or is being first mover not necessarily a significant long-term advantage (Golder & Tellis, 1993)? There has been much debate about first mover advantage with the consensus in the research being that being first in a new market has many challenges and rarely conveys significant advantage in the long term (Finney, Lueg, & Campbell, 2008; Klingebiel & Joseph, 2016). In many cases it is suggested that there are greater gains to be had in having an appropriate marketing mix and that being a fast follower may be just as advantageous (M. B. Lieberman & Montgomery, 1998).

For the individuals in organisations with a planning orientation, organisational readiness was found to be a key focus. The capacity for the organisation to make, or take advantage of, a new opportunity is central to the dynamic capabilities view of strategy (Teece, 2012; Teece et al., 1997). As the name suggests, the dynamic nature of this perspective implies an essential aspect of change, which must then be perceived by strategists

if they are to act on it. This leads to more recent questions that have been asked about the cognitive micro-foundations of dynamic capabilities, including the processes underlying the sensing of opportunities, seizing and reconfiguring to take advantage of them (Helfat & Martin, 2015; Helfat & Peteraf, 2015; Teece, 2007), and the benefit of examining these from a practice perspective (Regnér, 2008). Sensing in the dynamic capabilities view has largely been seen as an externally focussed capability (Teece, 2007), whereas the practitioners studied here were also sensing the internal readiness of the organisation. It was felt that the control of timing of the opportunity was often in the control of external parties. Intimation spirals were used to sense and investigate these external timings so they could be further developed as they arose. The assessment of relevant capabilities and the active development or manipulation of them in order to more quickly take advantage of opportunities has been proposed as a key function of strategy (G. K. Lee, 2008)

Returning to the temporal perspective, Crossan, Cunha, Vera and Cunha (2005) highlight the complexity of viewing organisational time only from the clock time standpoint. Using the notion of temporal structures (Orlikowski & Yates, 2002) allows us to examine the time based practices that were uncovered in research. Two key temporal structures were revealed. The first was the event time focus common to all the participants. Key strategic milestones become events around which time is measured. Significant events such as first customer, first staff hire, capital raising rounds, acquisitions or new partnerships become defining features which mark a strategic evolution over time for the organisation in the minds of the individuals. One reason such events are defining aspects of the strategic timeline is because they often signify a change in the rates of resource use or acquisition as mentioned earlier. For example, first customers will signify an increase in adoption rate and ultimately cashflow. First hires will increase the rate of expenses, referred to in start-up terminology as the burn rate. New partnerships can change the rate of capability development. Adoption

rates and also many other market or environmental factors are not typically linear over time. It is well established that humans are not good at estimating the impact of non-linear and in particular exponential relationships (Stango & Zinman, 2009). By viewing the strategic issues in terms of event time strategists are able to keep focus on the next key event required for progress. Note that the structure of event time is simultaneously used with clock time in order to assess progress or not, i.e. in practice both perspectives are required, rather than viewed as dualist opposites (Orlikowski & Yates, 2002). The strategic balance must be made between the rate of resource usage, which tends to be clock based, e.g. burn rate, and the rate of resource acquisition, which tends to be event based, e.g. customer acquisition, or new strategic partnerships.

The second temporal structure commonly employed was cyclic time. The cadence of strategic action and reflection, outlined by the intimation spirals described in previous chapters, was perceived alongside linear clock time in order to assess progress (Orlikowski & Yates, 2002). The cycle time seen in practice increased or decreased depending on several factors such as the ease of access to the market and relevant stakeholders, ability to create or refine the means for testing, complexity of post-test analysis and strategic decision making process itself. The participants went to considerable effort to travel to the market to show new prototypes to customers and elicit their feedback. Generally they were able to very quickly distil their feedback and bring that back to feed in to their strategic decision making process. At times they had to slow down e.g. to await for a more complex prototype to be constructed. Also when a new partner became involved this slowed the analysis and decision making processes. As mentioned above some participants described the external control of an opportunity meaning that for a large customer they have their own cycles where they are periodically ready to engage and evaluate options. The participants would try to sense these cycles and match them where possible. This adjusting of cadence in order to synchronise with

another is described as entrainment (Ancona & Chong, 1996). If this cycle time of others is either not perceived, or not in synchronisation with the readiness of the organisation, then the opportunity may be lost. In order to develop and take advantage of the opportunities seen in the research the practitioners' intuitive assessment of strategic entrainment was a significant element and is worthy of further investigation.

The concept of entrainment which was revealed as a significant strategic issue has been previously examined from several perspectives. It has been proposed that the fit between an organisation's own various internal cycles, or intra-entrainment, and those of the external environment, or extra-entrainment, have implications for firm performance (Perez-Nordtvedt, Payne, Short, & Kedia, 2008). A positive relationship has been found between performance and entrainment with key customers in internationalisation (Khavul, Pérez-Nordtvedt, & Wood, 2010). Acquisitions have been found to benefit from a balance between a regular rhythm in an organisation and triggered events (Shi & Prescott, 2012). However each of these studies have examined entrainment from a high level organisational perspective with little concern for how entrainment actually takes place at an individual level in practice. While there have been some individual level studies on entrainment in organisational research these have examined the process from an individual-team level in experimental settings and while there are important considerations discussed, such as cultural norms and temporal schema, these remain under researched from a practice perspective (Labianca, Moon, & Watt, 2005).

## 7.5 Strategic timing summary

In this chapter the theme of strategic timing, which emerged from the research, was examined from the external view, internal view, and strategic decision perspectives. Intuition and analysis was required in order to understand each of these perspectives. The three external factors that were of concern, were the rate of adoption of the new idea, the control of the timeframe for the opportunity and the reward profile. The three internal factors were the organisational readiness, the opportunity costs and the need for speed.

A cross case analysis of the research participants was able to identify three differing strategic orientations (Mintzberg, 1973; Mintzberg & Waters, 1985) and the tension between the internal and external factors relating to timing that influenced their strategic decisions. For those strategic practitioners with an entrepreneurial orientation, the tension between adoption rate and opportunity cost is a primary concern. For strategists in adaptive organisations the need for speed was balanced with the reward profile. For those in planning oriented organisations the tension was between control of the timing and organisational readiness.

The temporal structures (Orlikowski & Yates, 2002) of event time and cyclic time were features of the strategic practices uncovered in the research. Event time, when considered with clock time, has a direct bearing on the rates of resource usage and allocation in the organisation. Cyclic time and particularly strategic entrainment with external stakeholders' cycles has significant implications for how an opportunity may be developed.

## 8 Conclusions

*“The dogmas of the quiet past are inadequate to the stormy present. The occasion is piled high with difficulty, and we must rise with the occasion.*

*As our case is new, so we must think anew and act anew.”*

– Abraham Lincoln (1862)

The aim of this study has been to uncover how individuals use their entrepreneurial intuition in assessing and developing strategic opportunities in practice. In order to examine this from a pragmatic, strategy as practice perspective (Johnson et al., 2007) seven high-tech strategists were engaged in a longitudinal study and data was collected over a period of two years as they each sought opportunities and managed differing strategic situations. Abductive analysis (Blaikie, 2000) of the collected data including synthesis of existing literature, particularly dual process (Epstein, 1998) and creative action (Joas, 1996) theories, has uncovered new knowledge relating to the key cognitive practices employed, extending Hodgkinson and Healey’s (2011) static typology of strategic cognition. In concluding this thesis this chapter discusses the theoretical contributions of the research findings, their limitations and the implications for both future research and strategic practice.

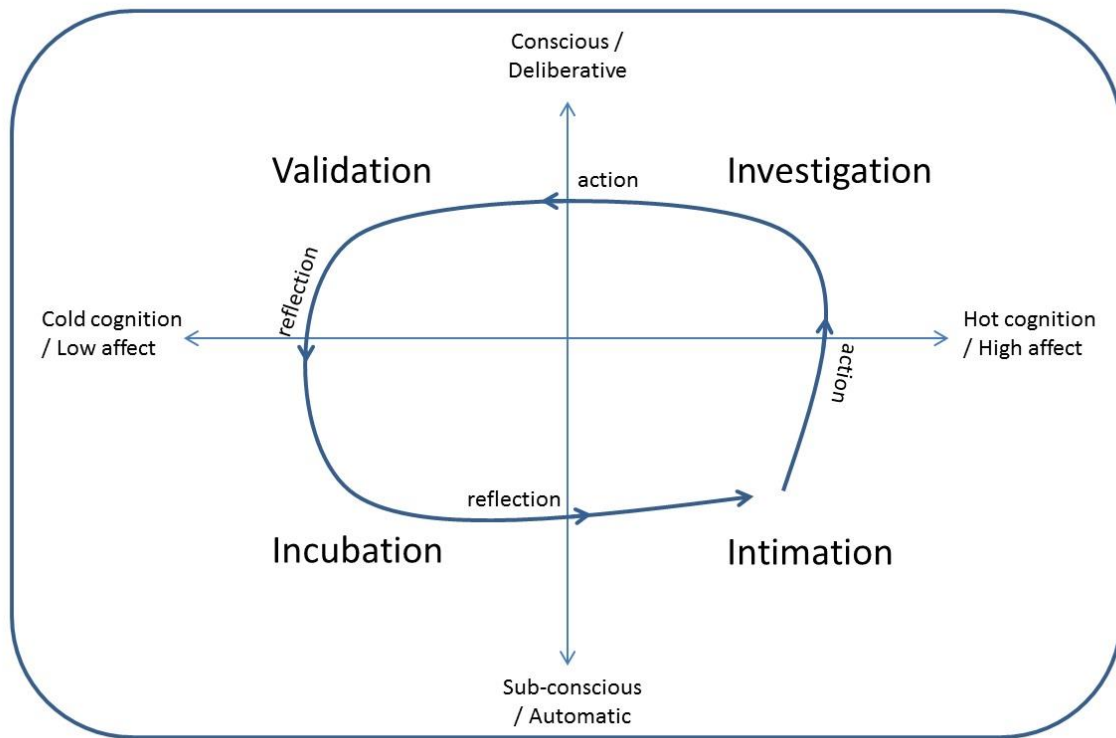
### 8.1 Theoretical contributions

The theoretical contribution of this research to the strategy as practice field falls into four areas, and each will be discussed in this section. These are the cognitive practice of intimation spirals, the interaction with others in order to build confidence, the significance of

timing along with strategic entrainment. The methodology employed in this study will also help advance research possibilities in the strategy as practice field.

### **8.1.1 Intimation spirals**

As discussed in the literature review, there have been many advances in the study of managerial cognition in recent years. In particular dual process theory has helped shed new light on the balance of both sub-conscious and conscious processes employed by strategists (Hodgkinson & Clarke, 2007; Hodgkinson & Healey, 2011; Hodgkinson, Sadler-Smith, Sinclair, et al., 2009). Alongside this a deeper understanding of the multi-faced nature of intuition has emerged (Gore & Sadler-Smith, 2011; Sadler-Smith, 2008; Sinclair, 2011) beyond solely that of “expert intuition” (H. Simon, 1987). Leveraging the pragmatic philosophical foundations of strategy as practice (Johnson et al., 2007) and aligning with creative action theory (Joas, 1996; MacLean & MacIntosh, 2012) has directed this research to examine the dynamic and creative aspects of the opportunity navigating process undertaken by strategic practitioners. Theoretical synthesis of dual process (Hodgkinson & Healey, 2011) and creative action theories alongside models of creativity (Sadler-Smith, 2015; Wallas, 1926) allowed for the development of the novel model shown below in Figure 8-1, referred to as an intimation spiral which extends Hodgkinson and Healey’s (2011) static dimensions of strategic cognition. Abductive analysis (Blaikie, 2000) of the research data found strong validity for intimation spirals across the participants during the two year longitudinal data collection.



**Figure 8-1. Intimation spiral model.**

Intimation spirals were used as a means of gathering strategic momentum (Amburgey & Miner, 1992; D. Miller & Friesen, 1982; Turner et al., 2013) for the opportunity. Or in cases where an opportunity was not progressed, the intimation spiral decreased to the point where no further action was felt necessary. This is one of the few research projects in this area which has been able to examine in the field both strategic opportunities that have progressed, alongside some of those that have been discontinued. Showing how the intimation spiral relates in developed and discarded opportunities is an important contribution as there is a natural survivor bias in most other studies examining processes relating to opportunity development (Nightingale & Coad, 2014).

This research has shed new light on the cognitive practices employed by strategic practitioners when seeking and making sense of new opportunities. This answers the call of several previous studies who suggest that more needs to be done to understand the dynamic



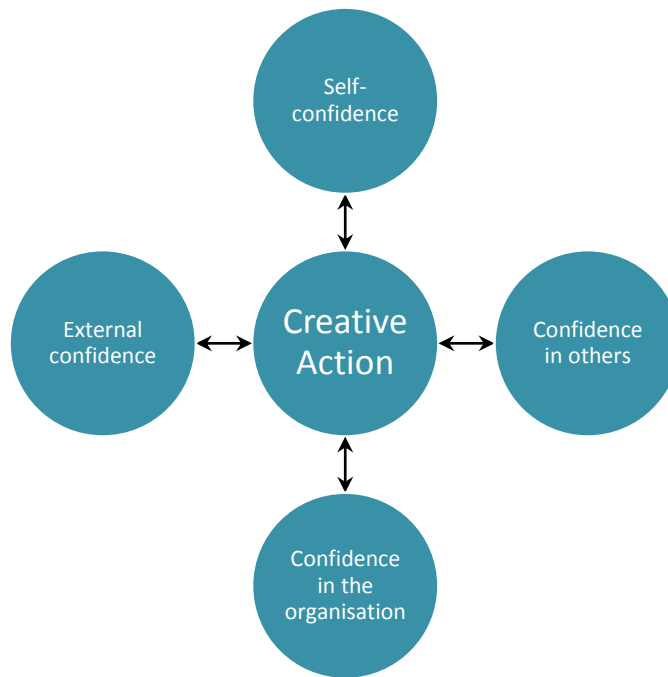
role of intuition and related processes in creative strategy development (Blume & Covin, 2011; Regnér, 2008; Sinclair et al., 2009; Wright et al., 2013). This research has delved deeper into the individual cognitive practices whereas previous studies have been focussed particularly on the speed of strategic decision making and the organisational factors that influence decision speed (Eisenhardt, 1989b; Perlow et al., 2002; Wally & Baum, 1994). In introducing the dynamic elements to Hodgkinson and Healy's (2011) model addresses their own question of how these cognitive practices can form the basis of dynamic capabilities. The dynamic view of strategic cognition that the intimation spiral provides is a better fit for the change inherent in the dynamic capabilities perspective on strategy (Teece, 2007). This study has primarily been focussed on the sensing and seizing aspects of opportunity development but the model remains open to examination in settings where transforming is more prevalent.

### **8.1.2 Interacting spirals, confidence and creative action**

One of the key concepts to emerge from the research was the importance of intuition relating to judgements about people. Overlapping intimation spirals mean that when engaging with others in an effort to investigate or validate an opportunity, the other party are typically not at the same stage in their spiral and so will react in different ways. During the study those participants who had metacognitive awareness (Flavell, 1979; Haynie & Shepherd, 2009; Tarricone, 2011) took the time to repeatedly visit customers were able to see how the thinking in others would progress over time and so more valuable interactions resulted. The consideration of other people's cognition influenced how the participants approached certain situations. This often led to engaging with others earlier and more often than might otherwise have been the case. Considering the intimation spirals of others provides a way of expanding the relevance of a creative action approach by explaining how this can help advance the

understanding of the other strategic partners. Existing perspectives encouraging action primarily view action as a means of advancing one's own knowledge only (McGrath & MacMillan, 2009).

The role of self-confidence, particularly relating to entrepreneurs, has been well documented (Busenitz & Barney, 1997; Kahneman, 2011; Perlow et al., 2002; Townsend et al., 2010). However other aspects of confidence, including confidence in others, in the organisation and external confidence (Kanter, 2004), have not been given so much research attention, particularly as they relate to strategic practitioners. In this study it was found that intuition was involved in the process of developing these different aspects of confidence in the strategic opportunities. This was a key focus for the participants and was closely related to the creative action (Joas, 1996) being undertaken, as shown in Figure 8-2. By relating creative action to the four areas of confidence described allows for a deeper analysis of the types of action undertaken by strategists in attempting to build confidence and ultimately strategic momentum in their opportunities.



**Figure 8-2. Creative action and four types of confidence**

One of the core principles of creative action is the role of interactive social identity formation (Joas, 1996; MacLean et al., 2015). By placing creative action at the core of the social interactions the participants undertook reflects how essential this identity formation process was to the opportunity development process. The actions of the participants and the reciprocal actions of others influenced the confidence across all four areas shown which helped define the actual nature of the opportunity and the interactive identity of those involved. In keeping with one of the other fundamentals of creative action, emerging intentionality (Joas, 1996), this emerged in the process of taking action and in fact could not have been developed without acting. Through these linkages this study provides empirical support for the theoretical positioning of creative action as an essential element of strategic practice (MacLean & MacIntosh, 2012; MacLean et al., 2015).

It has been suggested that in the field of entrepreneurship research on decision making has been too focussed on the individual and not enough on social influences (K. Miller,

2007). Positioning creative action as a central feature of the opportunity development process provides a theoretical foundation for the empirical findings of this study as well as supporting previous research highlighting the significance of social networks to entrepreneurial decision making (Vershina et al., 2017).

### 8.1.3 Timing and strategic entrainment

It was also found that intuition was often deployed in judgments about timing relating to the participants' opportunities. Deeper examination revealed a series of internal and external factors relating to strategic timing and the organisational strategic orientation (Mintzberg, 1973; Mintzberg & Waters, 1985; Regnér, 2003) had some bearing on the major concerns of the strategists involved, as shown in Table 8-1 below. Examining the strategic orientation where the strategists were situated and their primary temporal concerns provides a fresh perspective on the characteristics of the strategic decisions faced in those settings.

Strategic orientation	Primary external temporal factor	Primary internal temporal factor
<i>Entrepreneurial</i>	Adoption rate	Opportunity cost
<i>Adaptive</i>	Reward profile	Need for speed
<i>Planning</i>	Control of timing	Organisational readiness

**Table 8-1. Strategic orientation and temporal concerns**

Using the notion of temporal structures (Orlikowski & Yates, 2002) allows us to examine the time based practices that were uncovered in the research. Two key temporal structures were revealed in this study. The first was the event time focus common to all the participants. Key strategic milestones become events around which time and progress is

measured. The strategic balance must be made between the rate of resource usage, which tends to be clock based, e.g. cash burn rate, and the rate of resource acquisition, which tends to be event based, e.g. customer acquisition or new strategic partnerships.

The second temporal structure commonly employed was cyclic time. The cadence of strategic action and reflection was perceived alongside linear clock time in order to assess progress. The adjusting of cadence in order to synchronise with another is described as entrainment (Ancona & Chong, 1996). Entrainment has been examined in some strategic situations such as internationalisation (Khavul et al., 2010), acquisitions (Shi & Prescott, 2012) and organisational processes (Perez-Nordtvedt et al., 2008), but has not been examined previously in opportunity development at an individual level of focus, in a practice setting. In this study it was found in the participants that if the cycle time of others is either not perceived, or not in synchronisation with the readiness of the target organisation, then the opportunity may be lost. In order to develop and take advantage of the opportunities seen in the research the practitioners' intuitive assessment of strategic entrainment was a significant element. Entrainment may in fact be of more importance for the advancement of strategic opportunities than speed per se. However when external cycle times are undefined or difficult to comprehend then speed becomes the default means of attempting to achieve entrainment.

This study finds empirical support for temporal structures being deployed in practice (Orlikowski & Yates, 2002) and provides examples of specific strategic issues which were found to require practitioners to draw on a combination of different temporal structures. The significance of entrainment as a strategic consideration provides a new perspective and more nuanced understanding of the issue of speed in uncertain environments (Eisenhardt, 1989b; Perlow et al., 2002).

#### 8.1.4 Methodology

As highlighted by Johnson et al. (2007), the strategy as practice perspective encourages creativity and methodological innovation. This study has answered this call and has employed a novel combination of established techniques, built upon a solid philosophical and theoretical framework.

The combination of the self-Q method (Bougon et al., 1990) to create initial nodes in a cognitive causal map (Ackermann & Eden, 2011), followed by repeated sessions in order to review the map and capture the participants viewpoint with a longitudinal perspective (Huff et al., 1990) proved to be a very useful structure. This method limited researcher bias, a strength of the self-Q method (Bougon et al., 1990), because the node questions are generated by the participants themselves. Along with this the cognitive causal maps allowed for real time capturing of the participants view of their strategic environment, limiting the errors associated with retrospective self-reporting (Hodgkinson, 2002) and particularly over attribution of intuition (Blume & Covin, 2011). Triangulation was provided by use of repertory grid card sort (Kelly, 1955) based on Sinclair's (2011) speculative framework of intuition types. All conversations were recorded, transcribed, coded and abductive analysis employed (Blaikie, 2000; Miles & Huberman, 1994; Saldana, 2011) from which the themes and higher level concepts emerged.

The use of the visual causal maps as a structure for the repeat sessions with the participants also helped keep them engaged in the two year research process, an important consideration for longitudinal field based research (Saldana, 2003). Only one of the seven participants did not complete the full two year data collection phase, and this was due to personal circumstances and his re-location. Feedback from the participants as new theory was

emerging also helped maintain the participant engagement, and was carefully handled in order to avoid biases (Miles & Huberman, 1994) as discussed earlier in Chapter 5.

## **8.2 Limitations of the study**

This research was naturally limited by the sample size, demographics, industry and location of the research participants and so representativeness is the main limitation. In order to ensure the results and findings achieve as high external validity as possible, a multi-case design was employed, with extensive use of within and across case comparisons along with frequent linking to existing and related literature (Eisenhardt, 1989a; Miles & Huberman, 1994; Yin, 2009).

The trade-off of the longitudinal methodology employed (Saldana, 2003) meant that although good depth of data over time was able to be collected, this only came from seven participants and so broad diversity among the participants was lacking, although the selection criteria did not call for this (refer to chapter 3). As a result the research participants were all middle aged males from European-New Zealand backgrounds. While there appears to be some consistency in the practices employed as they approach their strategic opportunities, we cannot say if these are to be expected in other demographic groups. Perhaps other cultures with more collectivist outlooks (Nonaka & Zhu, 2012) for example may have different interactions when developing opportunities.

Similarly, the research participants were all from the hi-tech sector, which was selected for the speed of change as discussed previously. Although there were cross-case distinctions made between the individual contexts within the sector, such as hardware and

software focussed organisations, this single industry, and business-to-business focus limits the transferability of findings, but also provides opportunities for future research.

The location of the participants also has two other implications for representativeness (Miles & Huberman, 1994). Firstly there is the economic and social context of Christchurch, New Zealand in which each participant and case was located. During this period Christchurch was in recovery after the major earthquakes in February 2011 and each of the participants experienced varying degrees of upheaval to their personal and organisational lives during that time. It is possible that this experience has had some bearing on how they approach their opportunities, although there was little evidence of this in the data.

Secondly, as is common in the scale of businesses in New Zealand, all the participants' organisations can be considered small to medium enterprises in the international sense. The smallest organisation contained less than ten employees with the largest being around one hundred. This may mean the participants were able to be more nimble and flexible in how they acted on the opportunities than might be seen in larger organisations. However the trade-off is that they possibly had fewer resources at their disposal and so were restricted by what they could achieve within the means available.

Finally the single participant per organisation design limits any transferability of individual to organisational issues. The issues were viewed from the point of view of the individual participant and even in cases where collective opinions were discussed this was still the participant's perception of that situation. Particularly the issues raised relating to other people's confidence, would be interesting to view from the various multiple party's perspective.



### 8.3 Implications for future research

Clearly based on the above limitations one of the key directions for future research will be to establish validity of intimation spirals in a range of other individuals, settings and situations. In other industries where taking action to investigate may be less common, do individuals find other ways to investigate opportunities? Do decisions get made on the basis of intimation if investigative action is not carried out? Are some individuals based in other sectors more thorough than others in their validation? As was seen in the software vs hardware focussed participants, what are the differences relating to incubation in other industries?

Further investigation is also required into specifically how the relationship between creative action and the various types of confidence manifests itself. Questions for future research may include which types of actions are most appropriate for building each type of confidence? Are all four types of confidence required in order to advance an opportunity? For example if the individual becomes highly confident in the opportunity but is unable to build confidence in others, the organisation and externally, is this when entrepreneurial over-confidence becomes an issue (Busenitz & Barney, 1997)? What happens in the case the individual is not confident in the opportunity but others, the organisation and external network are? Are the four types of confidence complementary or are there instances where a decrease in one area may increase in another?

Similarly, while the importance of temporal structures and strategic entrainment were uncovered in this study, further mechanisms behind how they can be applied would warrant further investigation. Are there other temporal structures in addition to clock time, cycle time

and event time that strategists can utilise in order to better understand or create strategic opportunities? While some of the forces leading to decision acceleration in organisations have been examined (Perlow et al., 2002), if entrainment is required to develop an opportunity with a strategic target how do individuals and/or organisations slow down in order to synchronise with a slower moving organisation or stop themselves accelerating past the point of synchronisation for an initially faster moving target?

## **8.4 Implications for practice**

Given that this research has employed a pragmatic focus on strategic practice and practitioners (Jarzabkowski et al., 2007) it is natural there should be benefits for strategists in understanding the findings (Powell, 2002). By being aware of the dynamics of intimation spirals it is hoped that strategists will be able to gain greater metacognitive awareness (Flavell, 1979) and better equipped to navigate new opportunities. The dynamic nature of the model, in comparison to previous static conceptions of strategic cognition, more closely align with the dynamic nature of navigating opportunities as experienced in practice. By helping strategists better understand their own cognition from a dual process perspective, and the process phases that they are likely to follow in order to make sense of an opportunity, should encourage creative action and thereby reduce the risk of becoming entrenched in once quadrant or other. Encouraging action and experimentation to promote learning is a common feature of many contemporary practitioner focussed strategic tools and techniques including discovery driven planning (McGrath & MacMillan, 2009), design thinking (Brown, 2008; Liedtka, 2015; Martin, 2009), and lean start-up (Blank, 2013; Ries, 2011), among others. This common emphasis on a cycle of action and reflection reveals the underlying pragmatic foundations of these techniques (Farjoun et al., 2015; Morgan, 2014; Simpson, 2009).

The two contributions of the research relating to people each has implications for practitioners. Firstly is the increased understanding of how new ideas are perceived by others, though their own intimation spirals. This should enhance the awareness of the process in other people and so encourage better communication between strategic stakeholders. Encouraging people to engage in multiple communications over time with their strategic partners will allow time for the other party to progress their own thinking before reaching any conclusion. Secondly, considering the four different facets of confidence will help strategists build more robust and diverse support for a potential opportunity. Again the central role of creative action in this process should encourage practitioners to take action in order to develop understanding and define the social identity of themselves in relation to the opportunity space (Joas, 1996; MacLean et al., 2015).

The importance of strategic entrainment also has direct relevance for practice. While there is much rhetoric in the popular business media relating to speed of change and the need to be going faster, as was discovered in the research this is not necessarily always the answer. Considering the cycle time of an organisation and particularly that of other organisations that are strategic targets, will allow strategists to become more aligned in order to ensure internal capabilities match the external opportunity when it comes around. This focus on synchronisation rather than all out speed requires a close understanding of strategic targets and their business cycles, but ultimately may be more beneficial than just going ever faster. Other research has shown companies can fall into speed traps because of the self-reinforcing nature of many aspects of navigating an ever changing environment (Perlow et al., 2002). Increasing the awareness of strategic entrainment provides a counterbalance and possible controlling mechanism which would encourage a strategist to slow down, if that was required for synchronisation, or at least not continue to accelerate beyond that of the strategic target.

## 8.5 Concluding remarks

In concluding this thesis we return to the question raised in the introduction. In a world full of data, analytic tools and technology, what role does our emotions and intuition play in making sense of our environment (Hodgkinson & Healey, 2011), and specifically how do strategists actually utilise intuition in the opportunity sensing process?

By adopting the underlying philosophy of pragmatism and the specific lens of strategy as practice this study has examined the entrepreneurial intuition of seven high tech strategists as they made sense of the opportunities available to them in their strategic practice. A two year longitudinal research method was undertaken built around cognitive causal mapping alongside the theoretical structure of dual process and creative action theories. From an abductive research process a series of themes emerged which were synthesised into a novel viewpoint extending previous models of strategic cognition.

In highlighting intimation spirals as a cognitive practice, the significance of creative action alongside different aspects of confidence, and the role of temporal structures including strategic entrainment, it is hoped that some light has been shed on the question of how strategic entrepreneurial intuition is utilised in practice. Further knowledge undoubtedly awaits and a path forward has been shown for researchers and practitioners aiming to make further discoveries in this important area.

## References

- Ackermann, F., & Eden, C. (2010). Strategic Options Development and Analysis. In M. Reynolds & S. Holwell (Eds.), *Systems Approaches to Managing Change: A Practical Guide* (pp. 135-190): Springer London.
- Ackermann, F., & Eden, C. (2011). *Making strategy : mapping out strategic success* London: Sage.
- Adner, R., & Helfat, C. (2003). Corporate Effects and Dynamic Managerial Capabilities. *Strategic Management Journal*, 24(10), 1011-1025.
- Amabile, T. M. (1997). Entrepreneurial Creativity Through Motivational Synergy. *The Journal of Creative Behavior*, 31, 18–26.
- Ambrosini, V. (2003). *Tacit and Ambiguous Resources as Sources of Competitive Advantage*. Hampshire: Palgrave MacMillian.
- Ambrosini, V., & Bowman, C. (2009). What are dynamic capabilities and are they a useful construct in strategic management? *International Journal of Management Reviews*, 11(1), 29-49.
- Amburgey, T. L., & Miner, A. S. (1992). Strategic Momentum: The Effects of Repetitive, Positional, and Contextual Momentum on Merger Activity. *Strategic Management Journal*, 13(5), 335-348.
- Ancona, D. G., & Chong, C.-L. (1996). Entrainment: Pace, cycle, and rhythm in organizational behavior. In B. M. Staw & L. L. Cummings (Eds.), *Research in Organizational Behaviour* (pp. 251-284). Greenwich: JAI Press Inc.
- Ancona, D. G., Okhuysen, G. A., & Perlow, L. A. (2001). Taking Time to Integrate Temporal Research. *The Academy of Management Review*, 26(4), 512-529.
- Anderson, B., & Johnson, W. (1966). Two kinds of set in problem solving. *Psychological Reports*, 19(3), 851-858.
- Antoncic, B., & Hisrich, R. D. (2003). Clarifying the intrapreneurship concept. *Journal of Small Business and Enterprise Development*, 10(1), 7-7.
- Audretsch, D. B. (2012). Entrepreneurship research. *Management Decision*, 50(5), 755-764.
- Bahgai, M., Coley, S., & White, D. (1999). *The Alchemy of Growth: Practical Insights for Building the Enduring Enterprise*. London: Orion Business.
- Balogun, J., & Johnson, G. (2004). Organizational Restructuring and Middle Manager Sensemaking. *The Academy of Management Journal*, 47(4), 523-549.
- Bandura, A. (1997). *Self-Efficacy; The exercise of control*. New York: WH Freeman and Co.

- Bandura, A. (2001). Social Cognitive Theory: An Agentic Perspective. *Annual Review of Psychology*, 53, 1-26.
- Bannister, D., & Fransella, F. (2013). *Inquiring Man : Theory of Personal Constructs* (3 ed.). Hoboken: Taylor and Francis.
- Barnard, C. I. (1938). *The Functions of the Executive*. Cambridge, Massachusetts: Harvard University Press.
- Barney, J., & Felin, T. (2013). What are Microfoundations? *Academy of Management Perspectives*, 27(2), 138-155.
- Baron, R. A. (1998). Cognitive mechanisms in entrepreneurship. *Journal of Business Venturing*, 13(4), 275-294.
- Baron, R. A. (2006). Opportunity Recognition as Pattern Recognition: How Entrepreneurs "Connect the Dots" to Identify New Business Opportunities. *Academy of Management Perspectives*, 20(1), 104-119.
- Baron, R. M., & Misovich, S. J. (1999). On the relationship between social and cognitive modes of organization. In S. Chaiken & Y. Trope (Eds.), *Dual-process theories in social psychology* (pp. 586-605). New York: Guilford.
- Bayon, M. C., Vaillant, Y., & Lafuente, E. (2015). Initiating nascent entrepreneurial activities: The relative role of perceived and actual entrepreneurial ability. *International Journal of Entrepreneurial Behavior & Research*, 21(1), 27-49.
- Bilton, C., & Cummings, S. (2010). *Creative strategy: Reconnecting business and innovation*. Chichester, UK: Wiley-Blackwell.
- Bingham, C. B., & Eisenhardt, K. M. (2011). Rational Heuristics: The 'simple rules' that strategists learn from process experience. *Strategic Management Journal*, 32(13), 1437-1464.
- Bingham, C. B., & Eisenhardt, K. M. (2014). Response to Vuori and Vuori's commentary on "Heuristics in the strategy context". *Strategic Management Journal*, 35(11), 1698-1702.
- Bird, B. (1988). Implementing Entrepreneurial Ideas: The Case for Intention. *The Academy of Management Review*, 13(3), 442-453.
- Björklund, F., & Bäckström, M. (2008). Individual differences in processing styles: validity of the Rational–Experiential Inventory. *Scandinavian Journal of Psychology*, 49(5), 439-446.
- Blaikie, N. (2000). *Designing Social Research*. Cambridge, UK: Polity Press.
- Blank, S. (2013). Why the Lean Start-Up Changes Everything. *Harvard Business Review*, 91(5), 63-72.
- Bloom, P. (2017). Empathy and Its Discontents. *Trends in Cognitive Sciences*, 21(1), 24-31.

- Blume, B. D., & Covin, J. G. (2011). Attributions to intuition in the venture founding process: Do entrepreneurs actually use intuition or just say that they do? *Journal of Business Venturing*, 26(1), 137-151.
- Blundel, R., & Lockett, N. (2011). *Exploring entrepreneurship: Practices and perspectives*. Oxford: Oxford University Press.
- Bolton, R. (2014). Intuition in Aristotle. In L. Osbeck & B. Held (Eds.), *Rational Intuition. Philosophical Roots, Scientific Investigations*. New York: Cambridge University Press.
- Bougon, M., Baird, N., Komocar, J., & Ross, W. (1990). Identifying Strategic Loops: The Self-Q Interviews. In A. S. Huff (Ed.), *Mapping Strategic Thought* (pp. 327-354). Chichester, UK: John Wiley & Sons Ltd.
- Boyd, N. G., & Vozikis, G. S. (1994). The Influence of Self-Efficacy on the Development of Entrepreneurial Intentions and Actions. *Entrepreneurship: Theory & Practice*, 18(4), 63-77.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3, 77-101.
- Brown, T. (2008). Design Thinking. *Harvard Business Review*, 86(6), 84-92.
- Busenitz, L. W., & Barney, J. B. (1997). Differences between entrepreneurs and managers in large organizations: Biases and heuristics in strategic decision-making. *Journal of Business Venturing*, 12(1), 9-30.
- Campbell, N., & Mitchell, D. T. (2012). A (partial) review of entrepreneurship literature across disciplines. *Journal of Entrepreneurship and Public Policy*, 1(2), 183-199.
- Chamberlain, G. P. (2006). Researching Strategy Formation Process: An Abductive Methodology. *Quality and Quantity*, 40(2), 289-301. doi: 10.1007/s11135-005-8094-3
- Chen, C. C., Greene, P. G., & Crick, A. (1998). Does entrepreneurial self-efficacy distinguish entrepreneurs from managers? *Journal of Business Venturing*, 13(4), 295-316.
- Christensen, C. (1997). *The innovator's dilemma : when new technologies cause great firms to fail*. Boston: Harvard Business School Press.
- Claxton, G. (1997). *Hare brain, tortoise mind: How intelligence increases when you think less*. London: Fourth Estate.
- Cook, S. D. N., & Brown, J. S. (1999). Bridging Epistemologies: The Generative Dance between Organizational Knowledge and Organizational Knowing. *Organization Science*, 10(4), 381-400.
- Corballis, M. (1999). Are we in our right minds? In S. Della Sala (Ed.), *Mind Myths. Exploring Popular Assumptions About the Mind and Brain*. Chichester, England: John Wiley and Sons Ltd.
- Crossan, M., Cunha, M. P. e., Vera, D., & Cunha, J. (2005). Time and Organizational Improvisation. *The Academy of Management Review*, 30(1), 129-145.

- Crossan, M., Lane, H., & White, R. (1999). An Organizational Learning Framework: From Intuition to Institution. *The Academy of Management Review*, 24(3), 522-537.
- Daft, R. L., & Weick, K. E. (1984). Toward a Model of Organizations as Interpretation Systems. *The Academy of Management Review*, 9(2), 284-295.
- Dane, E., & Pratt, M., G. (2007). Exploring intuition and its role in managerial decision making. *The Academy of Management Review*, 32(1), 33.
- de Bono, E. (1977). *Lateral thinking : a textbook of creativity*. Harmondsworth, UK: Penguin.
- Dew, N., Read, S., Sarasvathy, S. D., & Wiltbank, R. (2009). Effectual versus predictive logics in entrepreneurial decision-making: Differences between experts and novices. *Journal of Business Venturing*, 24(4), 287-309.
- Dijksterhuis, A., & Nordgren, L. F. (2006). A Theory of Unconscious Thought. *Perspectives on Psychological Science*, 1(2), 95-109.
- Dimov, D. (2011). Grappling With the Unbearable Elusiveness of Entrepreneurial Opportunities. *Entrepreneurship: Theory & Practice*, 35(1), 57-81.
- Dörfler, V., & Ackermann, F. (2012). Understanding intuition: The case for two forms of intuition. *Management Learning*, 43(5), 545-564.
- Drucker, P. (1985). *Innovation and entrepreneurship: practice and principles*. London: William Heinemann Ltd.
- Drummond, H. (2014). Escalation of Commitment: When to stay the course? *Academy of Management Perspectives*, 28(4), 430-446.
- Dubois, A., & Gadde, L.-E. (2002). Systematic combining: an abductive approach to case research. *Journal of Business Research*, 55(7), 553-560.
- Duggan, W. R. (2007). *Strategic intuition: The creative spark in human achievement*. New York: Columbia University Press.
- Duggan, W. R. (2014). Intuition in Strategic Thinking. In L. Osbeck & B. Held (Eds.), *Rational Intuition. Philosophical Roots, Scientific Investigations*. New York: Cambridge University Press.
- Eisenhardt, K. M. (1989a). Building theories from case study research. *The Academy of Management Review*, 14(4), 532-550.
- Eisenhardt, K. M. (1989b). Making Fast Strategic Decisions in High-Velocity Environments. *The Academy of Management Journal*, 32(3), 543-576.
- Eisenhardt, K. M., & Martin, J. A. (2000). Dynamic Capabilities: What Are They? *Strategic Management Journal*, 21(10/11), 1105-1121.
- Epstein, S. (1998). Cognitive-experiential self-theory: A dual-process personality theory with implications for diagnosis and psychotherapy. In R. F. Bornstein & J. M. Masling (Eds.), *Empirical perspectives on the psychoanalytic unconscious*. (pp. 99-140): American Psychological Association.



- Epstein, S., Pacini, R., Denes-Raj, V., & Heier, H. (1996). Individual differences in intuitive–experiential and analytical–rational thinking styles. *Journal of Personality and Social Psychology*, 71(2), 390-405.
- Evans, J. S. B. T. (2008). Dual-Processing Accounts of Reasoning, Judgment, and Social Cognition. *Annual Review of Psychology*, 59(1), 255-278.
- Farjoun, M., Ansell, C., & Boin, A. (2015). Perspective - Pragmatism in Organization Studies: Meeting the Challenges of a Dynamic and Complex World. *Organization Science*, 26(6), 1787-1804.
- Felin, T., & Foss, N. J. (2011). The endogenous origins of experience, routines, and organizational capabilities: the poverty of stimulus. *Journal of Institutional Economics*, 7(2), 231-256.
- Finney, R. Z., Lueg, J. E., & Campbell, N. D. (2008). Market pioneers, late movers, and the resource-based view (RBV): A conceptual model. *Journal of Business Research*, 61(9), 925-932.
- Flavell, J. H. (1979). Metacognition and cognitive monitoring: A new area of cognitive–developmental inquiry. *American Psychologist*, 34(10), 906-911.
- Forbes, D. P. (2005). The Effects of Strategic Decision Making on Entrepreneurial Self-Efficacy. *Entrepreneurship: Theory & Practice*, 29(5), 599-626.
- Foss, N., & Lindenberg, S. (2013). Microfoundations for Strategy: A goal-framing perspective on the drivers of value creation. *Academy of Management Perspectives*, 27(2), 85-102.
- Gaglio, C. M., & Katz, J. A. (2001). The psychological basis of opportunity identification: Entrepreneurial alertness. *Small business economics*, 16(2), 95-111.
- Gehani, R. R. (2002). Chester Barnard’s “executive” and the knowledge-based firm. *Management Decision*, 40(10), 980-991.
- Gielnik, M. M., Frese, M., Graf, J. M., & Kampschulte, A. (2012). Creativity in the opportunity identification process and the moderating effect of diversity of information. *Journal of Business Venturing*, 27(5), 559-576.
- Gigerenzer, G., & Brighton, H. (2009). Homo Heuristicus: Why Biased Minds Make Better Inferences. *Topics in Cognitive Science*, 1(1), 107-143.
- Gigerenzer, G., & Gaissmaier, W. (2011). Heuristic Decision Making. *Annual Review of Psychology*, 62(1), 451-482.
- Gioia, D. A., & Chittipeddi, K. (1991). Sensemaking and Sensegiving in Strategic Change Initiation. *Strategic Management Journal*, 12(6), 433-448.
- Golder, P. N., & Tellis, G. J. (1993). Pioneer advantage: Marketing logic or marketing legend? *Journal of marketing research*, 158-170.
- Gore, J., & Sadler-Smith, E. (2011). Unpacking intuition: A process and outcome framework. *Review of General Psychology*, 15(4), 304-316.

- Guilford, J. P. (1959). Three faces of intellect. *American Psychologist*, 14(8), 469-479.
- Hall, J. N. (2013). Pragmatism, Evidence, and Mixed Methods Evaluation. *New Directions for Evaluation*, 2013(138), 15-26.
- Haynie, M., & Shepherd, D. A. (2009). A Measure of Adaptive Cognition for Entrepreneurship Research. *Entrepreneurship: Theory & Practice*, 33(3), 695-714.
- Helfat, C., & Martin, J. (2015). Dynamic managerial capabilities: Review and assessment of managerial impact on strategic change. *Journal of Management*, 41(5), 1281-1312.
- Helfat, C., & Peteraf, M. (2015). Managerial cognitive capabilities and the microfoundations of dynamic capabilities. *Strategic Management Journal*, 36(6), 831-850.
- Hennessey, B. A., & Amabile, T. M. (2010). Creativity. *Annual Review of Psychology*, 61, 569-598.
- Hodgkinson, G. P. (2002). Comparing Managers' Mental Models of Competition: Why Self-report Measures of Belief Similarity Won't Do. *Organization Studies*, 23(1), 63-72.
- Hodgkinson, G. P., & Clarke, I. (2007). Conceptual note: Exploring the cognitive significance of organizational strategizing: A dual-process framework and research agenda. *Human Relations*, 60(1), 243-255.
- Hodgkinson, G. P., & Healey, M. P. (2008). Cognition in Organizations. *Annual Review of Psychology*, 59(1), 387-417.
- Hodgkinson, G. P., & Healey, M. P. (2011). Psychological foundations of dynamic capabilities: reflexion and reflection in strategic management. *Strategic Management Journal*, 32(13), 1500-1516.
- Hodgkinson, G. P., & Healey, M. P. (2014). Coming in from the cold: The psychological foundations of radical innovation revisited. *Industrial Marketing Management*, 43(8), 1306-1313.
- Hodgkinson, G. P., Langan-Fox, J., & Sadler-Smith, E. (2008). Intuition: A fundamental bridging construct in the behavioural sciences. *British Journal of Psychology*, 99(1), 1-27.
- Hodgkinson, G. P., Maule, A. J., & Bown, N. J. (2004). Causal Cognitive Mapping in the Organizational Strategy Field: A Comparison of Alternative Elicitation Procedures. *Organizational Research Methods*, 7(1), 3-26.
- Hodgkinson, G. P., Sadler-Smith, E., Burke, L. A., Claxton, G., & Sparrow, P. R. (2009). Intuition in Organizations: Implications for Strategic Management. *Long Range Planning*, 42(3), 277-297.
- Hodgkinson, G. P., Sadler-Smith, E., Sinclair, M., & Ashkanasy, N. M. (2009). More than meets the eye? Intuition and analysis revisited. *Personality and Individual Differences*, 47(4), 342-346.
- Hogarth, R. M. (1981). Beyond discrete biases: Functional and dysfunctional aspects of judgmental heuristics. *Psychological Bulletin*, 90(2), 197-217.

- Huff, A. S. (1990). Mapping Strategic Thought. In A. S. Huff (Ed.), Mapping Strategic Thought (pp. 1-49). Chichester, UK: John Wiley & Sons Ltd.
- Huff, A. S., Narapareddy, V., & Fletcher, K. (1990). Coding the Causal Association of Concepts. In A. S. Huff (Ed.), Mapping Strategic Thought (pp. 311-326). Chichester, UK: John Wiley & Sons Ltd.
- James, W. (1991). Pragmatism. New York: Prometheus Books.
- Jarzabkowski, P. (2004). Strategy as practice: recursiveness, adaptation, and practices-in-use. *Organization studies*, 25(4), 529-560.
- Jarzabkowski, P., Balogun, J., & Seidl, D. (2007). Strategizing: The challenges of a practice perspective. *Human Relations*, 60(1), 5-27.
- Joas, H. (1996). The Creativity of Action. Chicago: The Chicago University Press.
- Johnson, G., Langley, A., Melin, L., & Whittington, R. (2007). Strategy as Practice. Research directions and resources. Cambridge, UK: Cambridge University Press.
- Kahneman, D. (2003). Maps of Bounded Rationality: Psychology for Behavioral Economics. *The American Economic Review*, 93(5), 1449-1475.
- Kahneman, D. (2011). Thinking, fast and slow. New York: Farrar, Straus and Giroux.
- Kahneman, D., & Lovallo, D. (1993). Timid Choices and Bold Forecasts: A Cognitive Perspective on Risk Taking. *Management Science*, 39(1), 17-31.
- Kanter, R. M. (2004). Confidence; How winning streaks and losing streaks begin and end. New York: Three Rivers Press.
- Kao, J. J. (1997). The art & discipline of business creativity. *Strategy & Leadership*, 25(4), 6-11.
- Kaplan, S. (2008). Framing Contests: Strategy Making Under Uncertainty. *Organization Science*, 19(5), 729-752.
- Kaplan, S., & Orlikowski, W. J. (2013). Temporal Work in Strategy Making. *Organization Science*, 24(4), 965-995.
- Kelly, G. (1955). The Psychology of Personal Constructs. London: Norton.
- Khatri, N., & Ng, H. A. (2000). The role of intuition in strategic decision making. *Human Relations*, 53(1), 57-86.
- Khavul, S., Pérez-Nordtvedt, L., & Wood, E. (2010). Organizational entrainment and international new ventures from emerging markets. *Journal of Business Venturing*, 25(1), 104-119.
- Kirzner, I. (1979). Perception, Opportunity, and Profit. Chicago: University of Chicago Press.
- Klein, G. (2009). Streetlights and shadows : searching for the keys to adaptive decision making. Cambridge, MA: MIT Press.

- Klein, G., Moon, B., & Hoffman, R. R. (2006). Making sense of sensemaking 1: Alternative perspectives. *IEEE intelligent systems*, 21(4), 70-73.
- Klingebiel, R., & Joseph, J. (2016). Entry timing and innovation strategy in feature phones. *Strategic Management Journal*, 37(6), 1002-1020.
- Knight, F. (1921). *Risk, Uncertainty, and Profit*. New York: Houghton Mifflin.
- Koellinger, P., Minniti, M., & Schade, C. (2007). "I think I can, I think I can": Overconfidence and entrepreneurial behavior. *Journal of Economic Psychology*, 28(4), 502-527.
- Koestler, A. (1977). The Truth of Imagination. *Diogenes*, 25(100), 103-110.
- Labianca, G., Moon, H., & Watt, I. (2005). When Is an Hour Not 60 Minutes? Deadlines, Temporal Schemata, and Individual and Task Group Performance. *The Academy of Management Journal*, 48(4), 677-694.
- Langer, E. J. (1975). The illusion of control. *Journal of Personality and Social Psychology*, 32(2), 311-328.
- Langley, A. (2010). The challenge of developing cumulative knowledge about Strategy as Practice. In D. Golsorkhi, L. Rouleau, D. Seidl & E. Vaara (Eds.), *Cambridge Handbook of Strategy as Practice*. Cambridge, UK: Cambridge University Press.
- Langley, A., Mintzberg, H., Pitcher, P., Posada, E., & Saint-Macary, J. (1995). Opening up Decision Making: The View from the Black Stool. *Organization Science*, 6(3), 260-279.
- Lank, A., & Lank, E. (1995). Legitimizing the gut feel: the role of intuition in business. *Journal of Managerial Psychology*, 10(5), 18-23.
- Lee, G. K. (2008). Relevance of Organizational Capabilities and Its Dynamics: What to Learn from Entrants' Product Portfolios about the Determinants of Entry Timing. *Strategic Management Journal*, 29(12), 1257-1280.
- Lee, H., & Liebenau, J. (1999). Time in Organizational Studies: Towards a New Research Direction. *Organization Studies*, 20(6), 1035-1058.
- Lieberman, M. B., & Montgomery, D. B. (1998). First-Mover (Dis)Advantages: Retrospective and Link with the Resource-Based View. *Strategic Management Journal*, 19(12), 1111-1125.
- Lieberman, M. D. (2000). Intuition: A social cognitive neuroscience approach. *Psychological Bulletin*, 126(1), 109-137.
- Lieberman, M. D. (2007). Social Cognitive Neuroscience: A Review of Core Processes. *Annual Review of Psychology*, 58(1), 259-289.
- Liedtka, J. (2015). Perspective: Linking Design Thinking with Innovation Outcomes through Cognitive Bias Reduction. *Journal of Product Innovation Management*, 32(6), 925-938.
- Lincoln, A. (1862). Second Annual Message to Congress. 1 December.

- MacLean, D., & MacIntosh, R. (2012). Strategic change as creative action. *International Journal of Strategic Change Management*, 4(1), 80-97.
- MacLean, D., MacIntosh, R., & Seidl, D. (2015). Rethinking dynamic capabilities from a creative action perspective. *Strategic Organization*, 13(4), 340-352.
- Maitlis, S., & Sonenshein, S. (2010). Sensemaking in crisis and change: Inspiration and insights from Weick (1988). *Journal of Management Studies*, 47(3), 551-580.
- March, J. G. (1991). Exploration and Exploitation in Organizational Learning. *Organization Science*, 2(1), 71-87.
- Marder, E. (2015). Understanding brains: Details, intuition, and big data. *PLoS Biology*, 13(5).
- Martin, R. L. (2009). *The design of business: Why design thinking is the next competitive advantage*. Boston: Harvard Business Press.
- McAfee, A., & Brynjolfsson, E. (2012). Big Data: The Management Revolution. *Harvard Business Review*, 90(10), 60-68.
- McGrath, R. G. (2010). Business Models: A Discovery Driven Approach. *Long Range Planning* 43, 247-261.
- McGrath, R. G., & MacMillan, I. C. (2009). *Discovery Driven Growth: A breakthrough process to reduce risk and seize opportunity*. Boston: Harvard Business Press.
- Melin, L. (2007). A perspective with potential to renew the field of strategy. In G. Johnson, A. Langley, L. Melin & R. Whittington (Eds.), *Strategy as Practice. Research directions and resources* (pp. 215-218). Cambridge, UK: Cambridge University Press.
- Miles, M., & Huberman, A. (1994). *Qualitative Data Analysis*. Thousand Oaks, CA: Sage.
- Miller, C. C., & Ireland, R. D. (2005). Intuition in strategic decision making: friend or foe in the fast-paced 21st century? *The Academy of Management Executive*, 19(1), 19-30.
- Miller, D., & Friesen, P. (1982). Innovation in Conservative and Entrepreneurial Firms: Two Models of Strategic Momentum. *Strategic Management Journal*, 3(1), 1-25.
- Miller, K. (2007). Risk and rationality in entrepreneurial processes. *Strategic Entrepreneurship Journal*, 1(1-2), 57-74.
- Milliken, F. J. (1987). Three Types of Perceived Uncertainty about the Environment: State, Effect, and Response Uncertainty. *The Academy of Management Review*, 12(1), 133-143.
- Mintzberg, H. (1973). Strategy-making in three modes. *California management review*, 16(2), 44-53.
- Mintzberg, H. (1976). Planning on the left side and managing on the right. *Harvard Business Review*, 54(4), 49-58.
- Mintzberg, H. (1994). *The rise and fall of strategic planning*. New York: The Free Press.

- Mintzberg, H., Ahlstrand, B., & Lampel, J. (1998). *Strategy Safari: A guided tour through the wilds of strategic management*. New York: The Free Press.
- Mintzberg, H., Raisinghani, D., & Theoret, A. (1976). The Structure of "Unstructured" Decision Processes. *Administrative Science Quarterly*, 21(2), 246-275.
- Mintzberg, H., & Waters, J. (1985). Of strategies, deliberate and emergent. *Strategic Management Journal*, 6(3), 257-272.
- Mitchell, J. R., & Shepherd, D. A. (2010). To thine own self be true: Images of self, images of opportunity, and entrepreneurial action. *Journal of Business Venturing*, 25(1), 138-154.
- Moore, G. (1999). *Crossing the chasm : marketing and selling high-tech products to mainstream customers*. New York: HarperBusiness.
- Morgan, D. (2014). Pragmatism as a Paradigm for Social Research. *Qualitative Inquiry*, 20(8), 1045 - 1053.
- Morita, A. (1991). *Selling to the world: the Sony Walkman story*. In H. J & W. D (Eds.), *Managing Innovation*. London: Sage Publications.
- Narayanan, V. K., Zane, L. J., & Kemmerer, B. (2010). The Cognitive Perspective in Strategy: An Integrative Review. *Journal of Management*, 37(1), 305-351.
- Nightingale, P., & Coad, A. (2014). Muppets and gazelles: political and methodological biases in entrepreneurship research. *Industrial and Corporate Change*, 23(1), 113-143.
- Nobel Media. (2017). All Prizes in Economic Sciences. Retrieved from [http://www.nobelprize.org/nobel\\_prizes/economic-sciences/laureates/](http://www.nobelprize.org/nobel_prizes/economic-sciences/laureates/) (Accessed 21 July 2017)
- Nonaka, I. (1991). The Knowledge-Creating Company. *Harvard Business Review*, 69(6), 96-104.
- Nonaka, I., & Takeuchi, H. (1995). *The knowledge-creating company : how Japanese companies create the dynamics of innovation*. New York: Oxford University Press
- Nonaka, I., Toyama, R., & Konno, N. (2000). SECI, Ba and Leadership: a Unified Model of Dynamic Knowledge Creation. *Long Range Planning*, 33(1), 5-34.
- Nonaka, I., & Zhu, Z. (2012). *Pragmatic Strategy. Eastern Wisdom, Global Success*. Cambridge, UK: Cambridge University Press.
- Novicevic, M., Hensch, T., & Wren, D. (2002). "Playing by ear" ... "in an incessant din of reasons": Chester Barnard and the history of intuition in management thought. *Management Decision*, 40(10), 992-1002.
- Ochsner, K. N., & Lieberman, M. D. (2001). The emergence of social cognitive neuroscience. *American Psychologist*, 56(9), 717-734.
- Orlikowski, W. J., & Yates, J. (2002). It's about Time: Temporal Structuring in Organizations. *Organization Science*, 13(6), 684-700.

- Pacini, R., & Epstein, S. (1999). The relation of rational and experiential information processing styles to personality, basic beliefs, and the ratio-bias phenomenon. *Journal of Personality and Social Psychology*, 76(6), 972-987.
- Patton, J. (2003). Intuition in decisions. *Management Decision*, 41(10), 989-996.
- Perez-Nordtvedt, L., Payne, G. T., Short, J. C., & Kedia, B. L. (2008). An Entrainment-Based Model of Temporal Organizational Fit, Misfit, and Performance. *Organization Science*, 19(5), 785-801.
- Perlow, L. A., Okhuysen, G. A., & Repenning, N. P. (2002). The Speed Trap: Exploring the Relationship between Decision Making and Temporal Context. *The Academy of Management Journal*, 45(5), 931-955.
- Pierce, C. S. (1992). *Reasoning and the Logic of Things*. Cambridge, MA: Harvard University Press.
- Ployhart, R., & Hale, D. (2014). The Fascinating Psychological Microfoundations of Strategy and Competitive Advantage. *Annual Review of Organizational Psychology and Organizational Behavior*, 1(1), 145-172.
- Poincare, H. (1929). *The foundations of science: science and hypothesis, the value of science, science and method* (G. Halstead, Trans. Vol. 1). New York: The Science Press.
- Polanyi, M. (1968). Logic and psychology. *American Psychologist*, 23(1), 27-43.
- Porac, J., & Thomas, H. (1994). Cognitive categorization and subjective rivalry among retailers in a small city. *Journal of Applied Psychology*, 79(1), 54-66.
- Porac, J., Thomas, H., & Baden-Fuller, C. (1989). Competitive Groups as Cognitive Communities: The Case of Scottish Knitware Manufacturers. *Journal of Management Studies*, 26(4), 397-416.
- Porter, M. (2006). Leader as Strategist. *Leadership Excellence*, 23(6), 6.
- Powell, T. (2001). Competitive Advantage: Logical and Philosophical Considerations. *Strategic Management Journal*, 22(9), 875-888.
- Powell, T. (2002). The Philosophy of Strategy. *Strategic Management Journal*, 23(9), 873-880.
- Powell, T., Lovallo, D., & Fox, C. (2011). Behavioral strategy. *Strategic Management Journal*, 32(13), 1369-1386.
- Reger, R., & Palmer, T. B. (1996). Managerial Categorization of Competitors: Using Old Maps to Navigate New Environments. *Organization Science*, 7(1), 22-39.
- Regnér, P. (2003). Strategy Creation in the Periphery: Inductive Versus Deductive Strategy Making. *Journal of Management Studies*, 40(1), 57-82.
- Regnér, P. (2008). Strategy-as-practice and dynamic capabilities: Steps towards a dynamic view of strategy. *Human Relations*, 61(4), 565-588.

- Ries, E. (2011). *The lean startup: How today's entrepreneurs use continuous innovation to create radically successful businesses*. New York: Crown Business.
- Rogers, E. (1995). *Diffusion of Innovations* (4th ed.). New York: The Free Press.
- Rouleau, L. (2005). Micro-Practices of Strategic Sensemaking and Sensegiving: How Middle Managers Interpret and Sell Change Every Day. *Journal of Management Studies*, 42(7), 1413-1441.
- Rumelt, R. P. (2011). *Good strategy, bad strategy : the difference and why it matters*. New York: Crown Business.
- Sadler-Smith, E. (2008). The Role of Intuition in Collective Learning and the Development of Shared Meaning. *Advances in Developing Human Resources*, 10(4), 494-508.
- Sadler-Smith, E. (2015). Wallas' Four-Stage Model of the Creative Process: More Than Meets the Eye? *Creativity Research Journal*, 27(4), 342-352.
- Saldana, J. (2003). *Longitudinal Qualitative Research. Analyzing Change Through Time*. Walnut Creek, CA: AltaMira Press.
- Saldana, J. (2011). *Fundamentals of Qualitative Research*. New York: Oxford University Press, USA.
- Salkind, N. (2010). *Encyclopedia of Research Design*. Thousand Oaks, California.
- Sarasvathy, S. (2001a). Causation and Effectuation: Toward a Theoretical Shift from Economic Inevitability to Entrepreneurial Contingency. *The Academy of Management Review*, 26(2), 243-263.
- Sarasvathy, S. (2001b). Effectual reasoning in entrepreneurial decision making: existence and bounds. *Academy of Management Proceedings*, 8(1), D1-D6.
- Sawyer, R. K. (2012). *Explaining Creativity: The Science of Human Innovation: The Science of Human Innovation*: Oxford University Press, USA.
- Schwenk, C. R. (1984). Cognitive Simplification Processes in Strategic Decision-Making. *Strategic Management Journal*, 5(2), 111-128.
- Shackle, G. L. S. (1990). *Time, Expectations and Uncertainty in Economics*. Aldershot UK: Edward Elgar Publishing Ltd.
- Shah, S., Horne, A., & Capellá, J. (2012). Good Data Won't Guarantee Good Decisions. *Harvard Business Review*, 90(4), 23-25.
- Shane, S., & Venkataraman, S. (2000). The Promise of Entrepreneurship as a Field of Research. *The Academy of Management Review*, 25(1), 217-226.
- Shi, W., & Prescott, J. E. (2012). Rhythm and Entrainment of Acquisition and Alliance Initiatives and Firm Performance: A Temporal Perspective. *Organization Studies*, 33(10), 1281-1310.
- Simon, H. (1987). *Making Management Decisions: The Role of Intuition and Emotion*. *The Academy of Management Executive* (1987-1989), 1(1), 57-64.



- Simon, H. (1990). Invariants of Human Behavior. *Annual Review of Psychology*, 41(1), 1-20.
- Simon, H. (1991). Bounded Rationality and Organizational Learning. *Organization Science*, 2(1), 125-134.
- Simon, M., & Houghton, S. M. (2002). The Relationship Among Biases, Misperceptions and Introducing Pioneering Products: Examining Differences in Venture Decision Contexts. *Entrepreneurship: Theory & Practice*, 27(2), 105.
- Simon, M., Houghton, S. M., & Aquino, K. (2000). Cognitive biases, risk perception, and venture formation. *Journal of Business Venturing*, 15(2), 113-134.
- Simpson, B. (2009). Pragmatism, Mead and the Practice Turn. *Organization Studies*, 30(12), 1329-1347.
- Sinclair, M. (2010). Misconceptions About Intuition. *Psychological Inquiry*, 21(4), 378-386.
- Sinclair, M. (2011). An integrated framework of intuition. In M. Sinclair (Ed.), *Handbook of Intuition Research* (pp. 3-16). Cheltenham: Edward Elgar Publishing.
- Sinclair, M., Sadler-Smith, E., & Hodgkinson, G. (2009). The role of intuition in strategic decision making. In L. Costanzo & R. MacKay (Eds.), *Handbook of Research on Strategy and Foresight*. Cheltenham, UK: Edward Elgar.
- Slovic, P., Finucane, M., Peters, E., & MacGregor, D. G. (2002). Rational actors or rational fools: implications of the affect heuristic for behavioral economics. *The Journal of Socio-Economics*, 31(4), 329-342.
- Sonenshein, S. (2007). The role of construction, intuition, and justification in responding to ethical issues at work: the sensemaking-intuition model. *Academy of Management Review*, 32(4), 1022-1040.
- Stango, V., & Zinman, J. (2009). Exponential Growth Bias and Household Finance. *The Journal of Finance*, 64(6), 2807-2849.
- Staw, B. M. (1981). The Escalation of Commitment to a Course of Action. *The Academy of Management Review*, 6(4), 577-587.
- Steinbruner, J. D. (1974). *The cybernetic theory of decision: New dimensions of political analysis*. Princeton, NJ: Princeton University Press.
- Stensaker, I., & Falkenberg, J. (2007). Making sense of different responses to corporate change. *Human Relations*, 60(1), 137-177.
- Tarricone, P. (2011). *The Taxonomy of Metacognition*. Hove, UK: Psychology Press.
- Te Ahukaramū, C. R. (2017). Te Ao Mārama – the natural world - The importance of the land, Te Ara - the Encyclopedia of New Zealand. Retrieved from <http://www.TeAra.govt.nz/en/photograph/7963/flax-bush> (accessed 23 August 2017)

- Teece, D. J. (2007). Explicating dynamic capabilities: the nature and microfoundations of (sustainable) enterprise performance. *Strategic management journal*, 28(13), 1319-1350.
- Teece, D. J. (2012). Dynamic Capabilities: Routines versus Entrepreneurial Action. *Journal of Management Studies*, 49(8), 1395-1401.
- Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic Capabilities and Strategic Management. *Strategic Management Journal*, 18(7), 509-533.
- Tolkien, J. R. R. (1954). *The Fellowship of the Ring*. London: Allen & Unwin.
- Townsend, D. M., Busenitz, L. W., & Arthurs, J. D. (2010). To start or not to start: Outcome and ability expectations in the decision to start a new venture. *Journal of Business Venturing*, 25(2), 192-202.
- Turner, S., Mitchell, W., & Bettis, R. (2013). Strategic Momentum. How Experience Shapes Temporal Consistency of Ongoing Innovation. *Journal of Management*, 39(7), 1855-1890.
- Tversky, A., & Kahneman, D. (1974). Judgment under Uncertainty: Heuristics and Biases. *Science*, 185(4157), 1124-1131.
- Van Boven, L., Dunning, D., & Loewenstein, G. (2000). Egocentric empathy gaps between owners and buyers: Misperceptions of the endowment effect. *Journal of Personality and Social Psychology*, 79(1), 66-76.
- Van Boven, L., & Loewenstein, G. (2003). Social Projection of Transient Drive States. *Personality and Social Psychology Bulletin*, 29(9), 1159-1168.
- Vershinina, N., Barrett, R., & McHardy, P. (2017). Logics and rationalisations underpinning entrepreneurial decision-making. *Journal of Small Business and Enterprise Development*, 24(1), 158-175.
- Vuori, N., & Vuori, T. (2014). Comment on “Heuristics in the strategy context” by Bingham and Eisenhardt (2011). *Strategic Management Journal*, 35(11), 1689-1697.
- Wallas, G. (1926). *The art of thought*. London: Cape.
- Wally, S., & Baum, J. R. (1994). Personal and Structural Determinants of the Pace of Strategic Decision Making. *The Academy of Management Journal*, 37(4), 932-956.
- Walsh, C., & Knott, P. (2014). The Role of Entrepreneurial Intuition in Making Sense of Strategic Opportunities. Paper presented at the Strategic Management Society Special Conference, Sydney, December 6-8.
- Walsh, J. (1995). Managerial and Organizational Cognition: Notes from a Trip Down Memory Lane. *Organization Science*, 6(3), 280-321.
- Wason, P. C. (1960). On the failure to eliminate hypotheses in a conceptual task. *Quarterly Journal of Experimental Psychology*, 12(3), 129-140.
- Weick, K. E. (1995). *Sensemaking in Organizations*. California: Sage Publications.

- Weick, K. E. (1998). Improvisation as a Mindset for Organizational Analysis. *Organization Science*, 9(5), 543-555.
- Weick, K. E. (2006). Faith, Evidence, and Action: Better Guesses in an Unknowable World. *Organization Studies*, 27(11), 1723-1736.
- Weick, K. E., Sutcliffe, K. M., & Obstfeld, D. (2005). Organizing and the Process of Sensemaking. *Organization Science*, 16(4), 409-421.
- Whetten, D. A. (2006). Albert and Whetten Revisited: Strengthening the Concept of Organizational Identity. *Journal of Management Inquiry*, 15(3), 219-234.
- Whittington, R. (1996). Strategy as practice. *Long Range Planning*, 29(5), 731-735.
- Whittington, R. (2006). Completing the Practice Turn in Strategy Research. *Organization Studies*, 27(5), 613-634.
- Winter, S. G. (2013). Habit, Deliberation, and Action: Strengthening the Microfoundations of Routines and Capabilities. *Academy of Management Perspectives*, 27(2), 120-137.
- Wood, R., Bandura, A., & Bailey, T. (1990). Mechanisms governing organizational performance in complex decision-making environments. *Organizational Behavior and Human Decision Processes*, 46(2), 181-201.
- Wright, R. (2008). Eliciting cognitions of strategizing using advanced repertory grids in a world constructed and reconstructed. *Organizational Research Methods*, 11(4), 753-769.
- Wright, R., Paroutis, S. E., & Blettner, D. P. (2013). How Useful Are the Strategic Tools We Teach in Business Schools? *Journal of Management Studies*, 50(1), 92-125.
- Yates, J. F., Jagacinski, C. M., & Faber, M. D. (1978). Evaluation of partially described multiattribute options. *Organizational Behavior and Human Performance*, 21(2), 240-251.
- Ye, Q. (2016). Effectual approaches and entrepreneurship outcome: from a perspective of behavioral biases. *Journal of Small Business & Entrepreneurship*, 28(5), 401-411.
- Yin, R. K. (2009). *Case study research : design and methods* (4th ed.). California: Sage Publications.

## **Appendices**

### **Appendix A – REI Questionnaire**

REI Questionnaire <sup>1</sup>	Definitely true	Somewhat true	Neutral	Somewhat un-true	Definitely un-true
Statement:					
I enjoy intellectual challenges					
I don't reason well under pressure					
I like to rely on my intuitive impressions					
My snap judgments are probably not as good as most people's					
Learning new ways to think would be very appealing to me					
I try to avoid situations that require thinking in depth about something					
I think it is foolish to make important decisions based on feelings					
I usually have clear, explainable reasons for my decisions					
I think there are times when one should rely on one's intuition					
I don't have a very good sense of intuition					
I have no problem thinking things through carefully					
I trust my initial feelings about people					
I don't like situations in which I have to rely on intuition					
I have a logical mind					
I tend to use my heart as a guide for my actions					
If I were to rely on my gut feelings, I would often make mistakes					
Intuition can be a very useful way to solve problems					
I enjoy thinking in abstract terms					
I enjoy solving problems that require hard thinking					
I can usually feel when a person is right or wrong, even if I can't explain how I know					
Reasoning things out carefully is not one of my strong points					
I would not want to depend on anyone who described himself or herself as intuitive					
Using logic usually works well for me in figuring out problems in my life					
I believe in trusting my hunches					
I am not very good at solving problems that require careful logical analysis					
I don't like to have to do a lot of thinking					
I don't think it is a good idea to rely on one's intuition for important decisions					
When it comes to trusting people, I can usually rely on my gut feelings					
I am much better at figuring things out logically than most people					
I often go by my instincts when deciding on a course of action					
Knowing the answer without having to understand the reasoning behind it is good enough for me					
I'm not that good at figuring out complicated problems					
Thinking is not my idea of an enjoyable activity					
I hardly ever go wrong when I listen to my deepest gut feelings to find an answer					
I am not a very analytical thinker					
I generally don't depend on my feelings to help me make decisions					
I prefer complex problems to simple problems					
Using my gut feelings usually works well for me in figuring out problems in my life					
Thinking hard and for a long time about something gives me little satisfaction					
I suspect my hunches are inaccurate as often as they are accurate					

<sup>1</sup> Pacini, R., & Epstein, S. (1999). The relation of rational and experiential information processing styles to personality, basic beliefs, and the ratio-bias phenomenon. *Journal of Personality and Social Psychology*, 76(6), 972-987

## **Appendix B – Participant information sheet**

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## RESEARCH PROJECT INFORMATION.

You are invited to participate as a subject in a research project examining “*The role of entrepreneurial intuition in making sense of strategic opportunities*”.

The aim of this project is to increase our understanding of how entrepreneurial intuition is used in successful strategic practice and also to provide strategists with a better understanding of intuition in order to assist with strategic opportunity identification.

Your involvement in this project will involve completing a questionnaire which will help categorise your cognitive style. Then we will conduct an initial interview which will identify the key strategic questions you are seeking to understand relating to your strategic environment in the next two years. From this we will collaboratively develop a cognitive causal map of how you view your strategic environment. A causal map is a flow diagram of all elements that you think may have some cause or effect on those key questions. This will be conducted at your location, with a white board and post-it notes and will be video recorded for later analysis. This will take approximately one hour. As a follow-up there will be review sessions where your previous causal map will be recreated. You will then be asked to review the previous map and update it based on your current thinking. You will then be asked in some detail about any changes to the map and the reasons for the change. These review sessions will also be video recorded and will take approximately 30 minutes. These will be repeated once per quarter, over a two year period.

You have the right to withdraw from the project at any time, including withdrawal of any information provided without penalty.

In the performance of the tasks and application of the procedures there are risks of confidential details being uncovered or discussed. Any items that are identified that you wish to remain confidential will be described in an agreed ambiguous way so as not to release any undesired information. The video recording will be turned off for such discussions.

The results of the project may be published, but you may be assured of the complete confidentiality of data gathered in this investigation and the identity of participants will not be made public. To ensure anonymity and confidentiality, company or personal names will not be used and descriptions of industry conditions etc will be general so as to not identify specific organisations. You will also be presented with a copy of the research findings and have the opportunity to discuss the results.

The project is being carried out as a requirement for a PhD by Christian Walsh under the supervision of Dr Paul Knott, who can be contacted by phone at: +64 3 364 2987 ext 6941, or e-mail at: [paul.knott@canterbury.ac.nz](mailto:paul.knott@canterbury.ac.nz). He will be pleased to discuss any concerns you may have about participation in the project.

The project has been reviewed **and approved** by the University of Canterbury Human Ethics Committee low risk process. The committee can be contacted via: Lynda Griffioen, Okeover House, University of Canterbury, Private Bag 4800, Christchurch, New Zealand; Telephone: +64 3 364 2987; or e-mail at: [human-ethics@canterbury.ac.nz](mailto:human-ethics@canterbury.ac.nz).

## **Appendix C – Participant consent form**



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### CONSENT FORM.

*The role of entrepreneurial intuition in making sense of strategic opportunities.*

I have read and understood the description of the above-named project. On this basis I agree to participate as a subject in the project, and I consent to publication of the results of the project with the understanding that anonymity will be preserved.

I understand also that I may at any time withdraw from the project, including withdrawal of any information I have provided.

I note that the project has been reviewed **and approved** by the University of Canterbury Human Ethics Committee low risk process.

NAME (please print): .....

Signature:

Date: